



GOVERNMENT OF NORTHERN IRELAND.

Sixth Annual Report
of the
Ministry of Agriculture
1926-27.

Presented by Command of
His Grace the Governor of Northern Ireland.

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GOVERNMENT HOUSE,
HILLSBOROUGH,
NORTHERN IRELAND,
2nd February, 1928.

SIR,

I have the honour to acknowledge the receipt of your letter, A.1511/27, of 1st February, 1928, covering the Sixth Annual Report of the Ministry of Agriculture being for the years 1926-1927.

This Report will be duly laid before the Governor.

I am,

Sir,

Your obedient Servant,

OSCAR HENDERSON,

Lieut.-Commander,

Private Secretary.

THE SECRETARY,

MINISTRY OF AGRICULTURE,

25 WELLINGTON PLACE,

BELFAST.

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GOVERNMENT OF NORTHERN IRELAND.

SIXTH ANNUAL REPORT

OF THE

MINISTRY OF AGRICULTURE.

TO HIS GRACE, JAMES ALBERT EDWARD DUKE OF ABERCORN, K.P.,
GOVERNOR OF NORTHERN IRELAND.

May it please your Grace,

I have the honour to submit the sixth annual general Report of the Ministry of Agriculture for Northern Ireland, covering the Ministry's operations from the 1st October, 1926, to the 30th September, 1927.

The Report is divided into the following sections :—

1. Advisory Committees.
2. Finance.
3. Agricultural Loans.
4. Agricultural Education.
5. Research.
6. Special Horticultural Experiments.
7. Marketing.
8. Agricultural Schemes.
9. Agricultural Laws, including Diseases of Animals Acts.
10. Flax and Potato Industries.
11. Forestry.
12. Statistics and Intelligence.
13. Surveys.

1. ADVISORY COMMITTEES.

Meetings of the Ministry's Advisory Committees were held as follows during the past year :—

Consultative Committee 20th May, 1927 ; 19th July, 1927.

Advisory Committees.

Horses	5th October, 1926 ; 24th November, 1926 ; 17th May, 1927.
Cattle	18th May, 1927.
Pigs	17th May, 1927.
Sheep	13th May, 1927.
Marketing of Eggs	28th October, 1926 ; 4th March, 1927.

The venue of the second meeting of the Consultative Committee was the Ulster Dairy School, Cookstown, and the members of the Committee availed themselves of the opportunity thus offered to inspect the school farm, crops, dairy stock, pigs and stock bulls.

The following changes in the personnel of the Consultative Committee took place during the year :—

Senator J. Hill Dickson, J.P., Ardmore, Ballygowan, County Down, and Mr. Patrick Cunningham, Strathroy, Omagh, County Tyrone, were appointed to fill the vacancies caused by the deaths of Mr. J. Stouppe F. M'Cance, D.L., J.P., Dunmurry, and Mr. James E. O'Neill, J.P., Maghera.

Advisory Committee on Dairying.—In March, 1927, the Ministry set up an Advisory Committee on Dairying to advise on all matters relating to the dairying industry in Northern Ireland. This Committee consists of 22 members, the following interests being represented:—Ulster Farmers' Union, Co-operative Societies, Milk Producers, Milk Retailers, Milk Recording Associations, Purchasers of Farmers' Butter.

The following is the personnel of the Committee:—

Miss Dorothy Robertson, Dogleap, Limavady, County Londonderry.

Rev. Robert Moore, Ballynacannon, Macosquin, Coleraine, County Londonderry.

Rev. Robert J. M'Ilmoyle, Dervock, County Antrim.

William R. Morrow, J.P., Ben Vista, Knock, County Down.

Thomas M'Dowell, Secretary, Ulster Farmers' Union, 5 Royal Avenue, Belfast.

James Timoney, The Creamery, Belleek, County Fermanagh.

James Johnston, Secretary, Ulster Agricultural Organisation Society, Ltd., Belfast.

William J. M'Allister, Artigarvan, Strabane.

William M'Loughlin, Scottish Co-operative Wholesale Society, Ltd., Enniskillen.

James Crawford, New Buildings, Londonderry.

Alexander Robb, J.P., Ballybeen House, Dundonald, County Down.

Captain Patrick Terris, Knappagh House, Killylea, County Armagh.

Matthew J. Wauchob, J.P., Laraghs, Newtown Stewart, County Tyrone.

William R. Creswell, J.P., Stag Hall, Belfast.

William J. M'Guffin, J.P., Belfast Co-operative Society, Ltd., Belfast.

Walter J. W. Osborne, J.P., Campsey, County Londonderry.

Joseph Wilson, 168 Cliftonpark Avenue, Belfast.

John Boyd, J.P., Straid, Ballynure, County Antrim.

Senator James Hill Dickson, J.P., Ardmore, Ballygowan, County Down.

Patrick Cunningham, Strathroy, Omagh, County Tyrone.

Dr. J. P. Johnston, Aughagriffin, Kesh, County Fermanagh.

Patrick O'Neill, J.P., Co-operative Wholesale Society, Ltd., Armagh.

This Committee met on the following dates during the year :—
24th March, 7th April, 5th May, and 7th June.

Conferences.

The Ministry has steadily pursued the policy of devolving upon county committees of agriculture as much freedom of action as is practicable in the working of approved local schemes, and conferences with the committees' officials are held from time to time in regard to matters pertaining to the operations of the schemes in general. During the period covered by this report the following conferences were held :—

Instructors in Agriculture.—3rd December, 1926.

Instructors in Horticulture.—17th November, 1926.

Instructors in Poultry-keeping and Butter-making.—23rd December, 1926 ; 27th June, 1927.

Secretaries of county committees.—2nd September, 1927.

The Ministry regrets to record the demise, during the period covered by this report, of Mr. R. T. Huston, M.R.C.V.S., who had acted as secretary to the county Armagh committee of agriculture for a period of twenty-six years.

Appointment of County Committees of Agriculture.

The tenure of office of county councils expired in May, 1927, and consequently the county committees of agriculture appointed by them under Section 14 of the Agriculture and Technical Instruction (Ireland) Act, 1899, dissolved simultaneously. One of the first duties of each newly elected county council therefore was to appoint a county committee of agriculture for the county. Having obtained early in the year from the secretaries of county committees of agriculture particulars regarding the numerical strength of their committees, the number of meetings held in the three preceding years and the average attendance at these meetings, the Ministry made the following recommendations for the guidance and assistance of the newly elected county councils in connexion with the appointment of agricultural committees :—

- (a) the council should make it a condition that a member of the committee shall *ipso facto* cease to hold office if absent without reasonable cause from four consecutive meetings of the committee, but shall be eligible for re-election by the council ;
- (b) the council should instruct the committee to appoint a chairman and deputy chairman, and
- (c) the council should require the secretary of the committee to submit to the council, at least one month prior to the date fixed for the next election of the council, a return of the number of meetings held and the number of attendances of each member of the committee.

It was further pointed out that under Section 78 (2) of the Education Act (Northern Ireland), the Ministry is empowered to limit the number of members to be appointed on a county committee, but that it did not intend to take action under this section. The hope was expressed, however, that the county council would consider the desirability of appointing a small committee as being likely to result in greater uniformity and in increased efficiency and expedition in the administration of county schemes. In this connexion the Ministry suggested the appointment of a committee whose number did not exceed the number of elected members on the county council, the committee comprising both members of the council and outside persons with the council members in a majority of at least one. It was further recommended that the committee should be appointed for the full term of the existence of the county council, i.e., three years, and that each rural district should be represented on the committee.

These suggestions were duly considered by county councils when appointing the new committees of agriculture. The numerical strength of the new county committees of agriculture is as follows :— county Antrim, 31 ; county Armagh, 29 ; county Down, 17 ; county Fermanagh, 27 ; county Londonderry, 32 and county Tyrone, 36.

2. FINANCE.

Pro forma accounts for the financial year 1st April, 1926, to 31st March, 1927, are shown in the appendices, pages 119 to 126 inclusive.

The total final expenditure for that year, including that incurred through local authorities, may be summarized under the following broad heads :—

	£
Agricultural Research and Faculty of Agriculture (including Building Grant to Queen's University and grants towards endowment of Hillsborough Research Station and capital expenditure thereon)	46,544
Agricultural Education	41,336
Live Stock Schemes	26,501
Flax and Potato Industries (including Seed Supply Scheme)	14,507
Forestry (including Unemployment Relief Scheme)	8,753
Marketing of Agricultural Produce	4,225
Collection of Agricultural Statistics	2,518
Subsidies to Shows	2,020
Improvement of Dairying	1,918
Miscellaneous Agricultural Services	1,308
Ordnance and Geological Surveys	8,834
Diseases of Animals Acts	22,123
General Expenses	43,496

£224,083

Expenditure was for the greater part defrayed from Votes of the Parliament of Northern Ireland. A contribution of £10,785 was made from local rates, being the produce of a rate of one penny in the pound levied by the several county councils for the purposes of agriculture and other rural industries in accordance with Section 78 (1) of the Education Act (Northern Ireland), 1923. Further, during the period under review, the first assessment was made on local authorities for the purpose of the General Cattle Diseases Fund for Northern Ireland, which had been established under the Administrative Provisions Act (Northern Ireland) 1926. A total sum of £5,306 14s 4d was levied, representing a rate of one farthing in the pound on the several counties and county boroughs. Portion of the expenditure of local authorities under the Diseases of Animals Acts is repayable from the Fund as indicated in the Ministry's fifth report. Of the total expenditure of £22,123 shown as incurred in connexion with the Acts, a sum of £2,575 was met direct from local rates.

A special grant of £14,011 was included in the Parliamentary Votes, being the fourth instalment of the sum of £54,000 already approved for certain agricultural purposes as indicated in the Ministry's third report.

The provision of a sum of £40,000 for the creation of a new fund for specific agricultural purposes, to be called the Agricultural Development Fund, is dealt with in pages 54 of this report.

3. AGRICULTURAL LOANS.

(a) *Purchase of bulls.*—No applications were received during the year for loans for the purchase of premium bulls. Under the scheme whereby subsidies are granted to associations of farmers towards the purchase of stock Shorthorn bulls applications were granted in two cases.

(b) *Purchase of Stallions.*—One loan was granted for the purchase of a stallion.

(c) *Purchase of Rams.*—Two subsidies were granted towards the purchase of pedigree rams to be retained in a district approved by the Ministry for three years, and to be used for the service of pure-bred black-face ewes the property of the purchaser and two other breeders. Under this scheme the Ministry may, at the end of the three years, require the purchaser to exchange the animal for another approved ram of the same breed.

(d) *Purchase of Agricultural Machinery.*—Two loans were granted for the purchase of agricultural machinery and implements—for a Fordson tractor and a Rhoderick Lean Disc Harrow in one case, and a threshing mill in the second case.

(e) *Fencing.*—With a view to encouraging farmers in poor districts to fence in their arable land or to fence off mountain grazing so as to permit of the holdings being used to the best

advantage, the Ministry is now prepared to consider a limited number of applications for loans for the erection of wire fencing. Particulars of the scheme will be found on p. 145 of the appendices. Two applications for loans under the new scheme were received, one of which was granted.

(f) *Live Stock Replacement Loans*.—As mentioned in previous annual reports the Ministry, in 1925, made arrangements for the granting of short-term loans to farmers who, owing to unfavourable weather conditions, had incurred losses of live stock and who wished to replace these losses.

Under the 1925 scheme a total sum of £45,509 was advanced to 982 farmers. These loans were repayable at the end of December, 1926, but as it appeared to the Government that to recall the loans in full on that date would, in many cases, be a hardship, it was decided that the loans should be repayable by three equal annual instalments on 31st December, 1926, 31st December, 1927, and 31st December, 1928.

It was brought to the notice of the Ministry in the spring of 1927 that many farmers who were eligible to benefit by the 1925 scheme had for one reason or another failed to make application. The Government, accordingly, decided to re-open the scheme for a limited period in order that such parties might be able to have their applications considered.

Under the revived scheme 483 loans, involving a total of £23,753 were granted. These loans are repayable by three instalments on the 31st March, 1928, 31st March, 1929, and 31st March, 1930.

The total advanced under both schemes was £69,262 in 1,465 loans.

4. AGRICULTURAL EDUCATION.

Every effort was made by the Ministry during the period dealt with in this report to intensify the operations of the system of agricultural education already established in Northern Ireland. A study of the detailed statements given in this section of the report as to the working of the various aspects of the system will show a considerable development, more particularly in lecture work, in visits of advice to farmers, and in experimental and demonstrational work. It is difficult to over-estimate the importance of these features of the work of the instructors employed under county committees of agriculture which are regarded by the Ministry as highly important, as they constitute the main channels for conveying directly to the farming community the benefits of scientific knowledge. These features also stimulate progressive younger farmers to take advantage of the further facilities provided by the Ministry in the winter agricultural classes and the agricultural school.

Of the forty-three students who took out the comprehensive course of training in agriculture and horticulture provided at the Greenmount Agricultural and Horticultural College from October,

1926, to July, 1927, twenty-six were boys who had already attended a winter agricultural class. The majority of the students trained at the college return on completion of their training to put the knowledge gained into practice on their farms. This is very gratifying because it constitutes a most effective method of bringing prominently to the notice of farmers living in the areas in which such students reside, the practical advantages arising from the adoption of modern methods of farming. The demand for courses of training at the Ministry's schools for girls also continues to grow, and, as in the case of the Greenmount College, the majority of the students, on completion of their course, return to their homes in the country.

The advanced course of training now available in the Agricultural Faculty of The Queen's University of Belfast, which is designed to meet the needs of Northern Ireland farming students who desire to obtain a University training in technical agriculture and the sciences allied thereto, is attracting an extremely good type of student, and the competition for the Ministry's scholarships in agricultural science is annually becoming keener. This course will be a valuable source of supply of trained agricultural teachers and research workers who, recruited as they are from Northern Ireland, will have the initial advantage of a knowledge of farming as practised in Northern Ireland, and of the special local requirements of the industry. At the close of the academic year 1926-27 five agricultural students who had completed the prescribed four years' course of training at the University obtained the degree in agriculture.

Scheme of Itinerant Instruction in Agriculture.

Details of the duties carried out by the instructors employed under this scheme are tabulated below.

County	Instructors employed	Farms visited	Lectures delivered	Attendance at lectures	No. of Field experiments carried out	No of demonstrations laid down
Antrim	2	1,001	29	1,002	41	233
Armagh	1	638	10	270	16	136
Down	2	931	14	737	27	170
Fermanagh	1	770	13	248	17	123
Londonderry	1	462	12	574	19	117
Tyrone	3	1,478	28	1,478	47	338
Total	10	5,280	106	4,309	167	1,119

In county Antrim throughout the year an agricultural overseer was employed who paid 931 visits to farms and laid down 164 demonstrations. As in previous years, ten agricultural overseers also were employed in the Six Counties under the special development grant. By this means agricultural education in its most practical application was carried right to the homes of those who most needed it, for it was assigned to these overseers, as their most

important duty, to visit farmers and help them at first hand with advice on the problems arising out of the current farm work. Their second main duty was to supplement this work by laying down demonstration plots. The following table gives the number of farms visited and demonstrations laid down in each county :—

County	Overseers employed	Farms visited	No. of demon- strations laid down
Antrim	1	1,140	142
Armagh	1	1,075	209
Down	2	1,436	349
Fermanagh	2	2,073	362
Londonderry	2	1,925	346
Tyrone	2	1,892	347
Total	10	9,541	1,755

Included in the above table are demonstrations with wild white clover and phosphatic manures, details of which will be found at page 19.

As it is clear from a survey of the operation of this scheme that the educational work of the agricultural overseers, characterized as it is by the personal touch, has been of much advantage to the farming community, especially in the poorer districts, arrangements have been made for the employment next year of five additional agricultural overseers as follows :—1 in county Armagh, 1 in county Fermanagh, 1 in county Londonderry and 2 in county Tyrone. The cost of these overseers will be defrayed out of funds available under the special development grant.

Particulars of the work assigned to agricultural instructors are set forth in scheme No. 8, a copy of which may be found at pages 18 to 20 of the appendices to the Ministry's report for 1922.

Winter Agricultural Classes Scheme.

A total of 300 students attended the classes, which were distributed over 20 centres; early in 1927, however, the class at one of the centres in county Fermanagh had to be discontinued owing to irregular attendance. In backward districts, where the need for agricultural education is most urgent, the demand for it is generally weakest, and it takes time to demonstrate the value of winter classes. During the year under review many of the classes were held in new and poor districts, and, not unnaturally, there was a decrease in the number of students enrolled as compared with the number for the preceding year. In the preparation of the syllabuses due consideration is given to the needs of the districts, with the result that the courses in agriculture and horticulture are especially valuable. In addition to these courses, instruction in veterinary hygiene was provided at the classes held in four counties. Emphasis was given in the syllabus of instruction in agriculture to the breeding,

feeding and management of pigs, to feeding stuffs with special reference to the utilization of home-grown foods, and to the improvement of pasture.

The general diligence of 143 students was recognized by the award of a certificate in each case. More detailed information as to the classes is set out in the following table :—

County.	No. of centres.	Centres.	No. of students enrolled.
Antrim	4	Armoy	14
Do.		Martinstown	19
Do.		Stoneyford	13
Do.		Antrim	11
Armagh	2	Markethill	13
Do.		Newtownhamilton	16
Down	4	Dromore	15
Do.		Killowen	11
Do.		Ballynahinch	10
Do.		Ballymacbrennon	11
Fermanagh	2	Derrygonnelly	19
Do.		Coa	10
Londonderry	2	Curryfree	14
Do.		Eglinton	24
Tyrone	6	Mountfield	17
Do.		Feglish	22
Do.		Killeter	25
Do.		Ballinamallaght	16
Do.		Sandholes	10
Do.		Aughnacloy	10

Particulars of this scheme will be found at pages 21-24 of the appendices to the Ministry's annual report for 1922.

* *Greenmount Agricultural and Horticultural College.*

No change was made during the year in the general arrangements whereby scholarships worth £65 each, covering tuition, board, residence and ordinary medical attendance, are offered by the various county committees of agriculture for competition among young men the sons of farmers in Northern Ireland. The Ministry, by means of examinations, written and oral, held at a selected centre in each county, tested the suitability of candidates for admission for the session which opened on the 12th October, 1926, and terminated on the 30th July, 1927. Forty candidates having satisfied the test, were admitted to the college, one as a paying student and 39 as scholarship holders. In addition, three students who sat at the examination held in connexion with the Ministry's scholarships in agricultural science, 1926-27, were, in view of their answering at that examination, considered suitable for admission to training at the Greenmount College. On the recommendation of the Ministry scholarships were allotted to these three students by the county committees concerned. In all forty-three

students were admitted to the college, and of these thirty-nine took out the course in agriculture and four the course in horticulture.

Scholarships were awarded by each county committee of agriculture in Northern Ireland as follows :—

Antrim 12, Armagh 2, Down 13, Fermanagh 2, Londonderry 4 and Tyrone 9.

During the month of September, 1927, a special short course of practical training in agriculture was held at the college for prospective candidates at the examination for scholarships in agricultural science tenable in the year 1927-28. The course was attended by 14 students.

The courses of instruction provided at the college are set out in detail at pages 25-33 of the appendices to the Ministry's first annual report.

University Scholarships.

With a view to provide higher educational facilities for young men in Northern Ireland who intend to specialize in technical agriculture, the Ministry continued to offer for competition scholarships in agricultural science, tenable for four years in the Faculty of Agriculture of The Queen's University of Belfast. The competition is restricted by the stipulation that candidates must have passed the matriculation examination of the Queen's University or its accepted equivalent; further, candidates are submitted to a test as to their knowledge of general agriculture as practised in Northern Ireland. Sixteen candidates who satisfied the condition as to matriculation attended for this test at the Greenmount Agricultural and Horticultural College, on the 11th October, 1926. On the results of the test, which consisted of a written, oral and practical examination in agriculture, six scholarships, each of the value of £100 per annum, were awarded for the academic year 1926-27. In the previous year seventeen holders of the Ministry's scholarships were in attendance at lectures in the Faculty of Agriculture, this number being made up of 5 fourth year students, 3 third year students, 3 second year students, and 6 first year students. All the fourth year students, having passed the necessary examinations, obtained the degree of Bachelor of Agriculture, three as a degree in general agriculture and two as a degree with honours in one of the agricultural sciences. In the case of the remaining students the scholarships have been renewed for a further year. In addition to the above-mentioned seventeen scholarship holders there are three fee-paying students and two students holding scholarships from the Gibson Trust Fund, who are also taking out the course in the Faculty of Agriculture.

Ulster Dairy School.

Agriculture as an industry is especially distinguished from other industries by the extent to which the farmers' women-folk can

directly contribute to the welfare of the industry, and it is therefore an important matter to provide facilities for their education in subjects germane to their everyday work. Such facilities are provided by the Ministry at the Ulster Dairy School and the North West Agricultural School. At the former, where there is accommodation for fifty pupils, four courses of instruction are held each year in poultry-keeping, butter-making and rural housewifery including cooking, sewing, laundry work, etc. It is a satisfactory testimony to the soundness of the curriculum and to the practical value of the instruction that there is now a lengthy waiting list of applicants for admission.

During the period 5th October, 1926, to 30th September, 1927, 101 girls, of whom 33 had entered during the previous year, received instruction at the school. The training of 72 pupils was completed, 15 having been in residence for one term, four for two terms, 35 for three terms and 18 for four or more terms.

The school certificate was awarded to forty-six pupils who successfully passed the terminal examination; arrangements were made whereby 3 girls who desired to qualify for the post of itinerant instructor in poultry-keeping and butter-making were enabled to take out a 20 weeks' course of training at an approved poultry farm in Northern Ireland, and thus widen their practical experience; and three other girls were awarded creamery "apprenticeships," i.e., free instruction at an approved creamery in Northern Ireland and an allowance towards the cost of maintenance.

Subjoined are particulars of the attendance of pupils :—

Term.	Attendance.		
5th October—22nd December, 1926	48
4th January—18th March, 1927	45
29th March—10th June, 1927	46
20th July—30th September, 1927	44
Total	183

Every advantage is taken of the facilities for educational work afforded by the farm attached to this school. Organized parties of farmers and their wives are welcomed each year, and the visitors are shown the work in progress—the number of such visitors last year was about 600. Great interest is invariably taken in the herd of pedigree and non-pedigree dairy Shorthorns and in the efforts which are being made to improve the cattle and to increase the milk yield by breeding and feeding. Milk recording is carried out daily, and it is regarded as a means of collecting useful information on which measures for the improvement of dairy stock are largely based. Experiments are always in progress relating to the breeding and fattening of pigs of the type most suitable for Northern Ireland. On the tillage area of the farm plots are laid down with different varieties of crops and experiments are also being carried out on the seeding and manuring of grass land.

An extensive and up-to-date poultry department is maintained for educational purposes, but it also serves as a centre for distribution of hatching eggs and stock birds of the breeds most popular in Northern Ireland. The records of several hundred pullets are ascertained annually by trap-nesting.

North-West Agricultural School.

Here, as in the Ulster Dairy School, four courses of instruction in poultry-keeping, butter-making and rural housewifery are held annually. In connexion with these courses, each of which lasts about 10½ weeks, all county committees of agriculture in Northern Ireland provide scholarships for girls resident in their respective counties. During the year a number of girls, who had taken out a course of training at this school, were regarded, in view of their progress while at the school, as suitable for further training, and were approved for admission to the Ulster Dairy School.

The table below shows the attendance of pupils at each term during the period covered by this report :—

Term.	Attendance.
5th October—22nd December, 1926	23
4th January—18th March, 1927	24
29th March—10th June, 1927	23
20th July—30th September, 1927	19
Total	89

Attached to the school is a farm of over fifty statute acres which is used to the fullest possible extent for experimental purposes. It provides an important adjunct to the plant breeding division at Stormont, inasmuch as it is used for propagating new and selected varieties of oats in the final stage before the seed is distributed to farmers.

Extensive series of experiments with potatoes are carried out each year, and the annual public demonstration held in connexion with these experiments is invariably attended by a large number of farmers.

The orchard is used for experiments on the spraying and manuring of apple trees.

Full particulars of the courses of instruction at the foregoing two schools will be found at pages 33-35 of the appendices to the Ministry's annual report for 1922.

Agricultural Experiments.

As compared with 1925-26 no substantial change was made in the scheme of agricultural experiments in operation in each county for the year 1926-27. Most of such changes as were made are in-

licated on page 127 of the appendices to this report. The following table shows the number and nature of the field experiments :—

Experiments	Manurial Experiments	Variety of Seeds Experiments	Mixtures of Seeds Experiments	Residual Value Experiments	Liming Experiments	Others	Total
Potatoes	6	34	—	—	2	—	42
Turnips	—	17	—	—	3	—	20
Mangels	—	11	—	—	—	—	11
Oats	2	28	—	—	3	10*	43
Wheat	—	5	—	—	—	—	5
Hay	7	10	21	—	1	—	39
Wild White Clover	—	—	—	4	—	—	4
Grazing	—	—	—	—	3	—	3
Totals	15	105	21	4	12	10	167

*Rate of seeding experiment.

Sugar Beet Experiments.

In accordance with the recommendations contained in the report of the Commission on the Natural and Industrial Resources of Northern Ireland relative to the growing of sugar beet, the Ministry arranged for the laying down in the year 1926-27 of a number of experimental plots with a view to obtain definite information regarding the yield and quality of sugar beet produced on average farms in Northern Ireland. These experiments, which were undertaken by the county committee of agriculture in each county with the exception of county Fermanagh, were carried out at 11 centres in all, under the supervision of the county instructors. One acre was sown at each centre, one half of the area being sown with Dutch, the other with German seed. A cultivation allowance of £7 per acre will be paid to each grower who will have satisfied, in the conduct of the experiments, the conditions prescribed by the Ministry.

It is proposed to continue the sugar beet experiments during the year 1927-28.

Horticultural Experiments.

The scheme of horticultural experiments carried out in 1925-26 was continued unchanged, except for the alterations indicated at page 127 of the appendices to this report. The following table shows the number and nature of horticultural experiments carried out during the period under review :—

County.	Apple Scab.	Manuring of Apple Trees.	Manuring of Black- currants.	Acarine Disease.	Total.
Antrim	4	3	3	2	12
Armagh	6	3	3	2	14
Down	3	1	2	1	7
Fermanagh	1	1	—	—	2
Londonderry	1	—	1	1	3
Tyrone*	—	—	—	—	—
Totals	15	8	9	6	38

*The instructor in horticulture in county Tyrone ceased duty on 31st May, 1927, and his successor had not been appointed before the close of the period under review.

The Ministry considered that the investigations in connexion with ovicidal sprays on apple trees and those in connexion with American gooseberry mildew, which had been carried on for some years, should be regarded as having passed the experimental stage. Demonstrations, in which sprays which have given satisfactory results are made use of, were accordingly laid down by each instructor in horticulture.

Live Stock Experiments.

“ Baby Beef ” experiments were carried out at five centres in the counties of Down, Londonderry and Tyrone. An experiment to compare the merits of outdoor and indoor fattening of pigs was carried out at five centres in counties Armagh, Fermanagh and Tyrone. An experiment to determine the value of a mixture of minerals with and without added protein in the fattening of pigs was carried out at four centres in counties Down, Londonderry and Tyrone. Particulars of this experiment will be found on page 128 of the appendices to this report.

Other Experiments.

Many experiments outside the scope of the official scheme were carried out by the instructors in agriculture and horticulture, and the results, together with the results of the experiments in the official schemes, will be published in the annual reports of the several county committees of agriculture.

Demonstrations.

During the period under review the instructors and overseers laid down over 3,000 demonstration plots, this number being an increase of 500 over the number laid down during the previous twelve months. These demonstration plots are intended to show farmers the advantages of sowing better grass seed mixtures, of manuring pasture and other crops, and of comparing the cropping

capacity of different varieties of the various farm crops. Very often these demonstration plots, with their appeal to the eye, drive home an important lesson where the ordinary lecture might fail to convince or persuade. A realization of their high value as a teaching medium emphasizes the importance of the increase in the number of plots laid down this year, particularly as the majority of the plots are located in the more backward areas where there is the greatest need for the application of improved methods.

Improvement of Pastures.

During the year demonstration plots in the laying down of wild white clover and phosphatic manure were established in each county as follows:—

County.	Wild White Clover.		Phosphatic Manure.	
	Number of Plots.		Number of Plots.	
	1925-26.	1926-27	1925-26.	1926-27.
Antrim ...	54	175	80	108
Armagh ...	50	56	54	62
Down ...	104	122	108	105
Fermanagh ...	49	56	169	144
Londonderry ...	58	79	95	78
Tyrone ...	132	137	123	144
Totals ...	447	625	629	641

Exhibits at Agricultural Shows.

As in past years educational exhibits were arranged at the summer shows of the Royal Ulster Agricultural Society at Balmoral and the North West of Ireland Agricultural Society at Londonderry. The various exhibits of live stock at Balmoral were housed in the commodious annexe which had been completed since the date of the 1926 show, thus leaving the entire Exhibition Hall for the remaining sections of the display, which was the largest ever staged there.

In planning the different exhibits due attention was given to their practical aspect. An effort was made to bring to the notice of visitors various details of improved methods of crop and animal husbandry, the adoption of which would tend to increase production and thus reduce production costs. With existing conditions it is imperative that the farmer should explore every means by which costs may be reduced. An obvious way is the obtaining of increased yields of crops from a given area without a corresponding increase in the costs of production and of increased gains in live stock without increasing the food bill. Exhibits designed to emphasize these aspects of agriculture were a feature of the exhibition.

Exhibits of animals fed on different rations demonstrated the value of systems of feeding not in general practice, and showed that money may be saved and more profit made by the adoption of a modification of the usual methods of feeding. For example, three lots of calves fed on cooked meals, raw meals and raw crushed oats, respectively, in addition to separated milk demonstrated clearly that the cooking of meal mixtures for calves is quite unnecessary, and that equally good calves may be reared on separated milk and raw crushed oats.

Demonstrations on the actual process of dishorning young calves were a popular feature. Breeders of store cattle now realize that hornless animals are more valuable than those with horns, and that the highest prices in the British markets will be obtained only if Irish stores are sent forward in good condition and hornless.

The sale of cattle as "baby" beef as an alternative to their sale as stores was also suggested. Two lots of calves of the same age, one lot having been fed in the usual way for sale as stores and the other fed more intensively on concentrates and ready for slaughter as "baby" beef, were exhibited. These two lots created much interest and visitors took the opportunity of comparing the profits obtained by each system.

The rationing of dairy cows was demonstrated in an interesting section, the preliminary work of milk recording was shown to be essential if profitable and economic milk production is to be obtained.

In the pig department one of the outstanding features was live animals which had been fed on various rations to obtain information on the following points:—

- (1) Raw meals as compared with cooked meals.
- (2) Fattening outdoors as compared with indoors.
- (3) Substitutes for separated milk.
- (4) The value of minerals in the ration.

There is considerable scope for the breeding and feeding of more pigs in Northern Ireland, as a large proportion of the pigs cured in that area are bred outside the Six Counties. That "suckers" can be more cheaply bred and reared than purchased was clearly illustrated, and farmers were advised to breed and rear the pigs they fatten, and thus get the breeders' profit in addition to that of the feeder. Attention was further directed to the small pork trade, and live and dead specimens of the type and weight of pig most suitable for this trade were exhibited.

Exhibits of black-faced rams of superior type and quality, together with the type of progeny bred by them demonstrated the value of high grade sires in the improvement of the quality of sheep in mountainous districts, and impressed visitors with the importance of using only good quality rams for breeding. Sheep farmers were

given further information with regard to the proper clipping and handling of wool. Demonstrations of these processes were given at intervals, and were followed with considerable interest.

In the general agricultural section the obtaining of good pastures and the improvement of existing poor pastures formed the subject of a valuable display in which actual specimen parts taken from fields were exhibited. The proper management of pastures including suitable grazing was also emphasized as a means of obtaining more profit by saving bills for concentrates.

A valuable section pointing to the development of the potato export trade was staged. Potato growers were shown that the extension of this trade depended on the cultivation of suitable varieties, as well as on the use of pure and healthy stocks of seed and the employment of proper methods of grading and packing. Specimens of the various varieties recommended were on view, as was also a quantity of potatoes graded in accordance with market requirements and bagged to suit the export trade.

An increase in the yield of oats and flax per acre is tantamount to reducing the cost of production per cwt. Higher yields may be obtained by the use of high-yielding varieties. Samples of some of these were exhibited and tables showing comparative yields displayed.

In the poultry section many practical hints were given with the object of impressing on poultry keepers the value of proper management, including the selection of breeding stock, early hatching, culling, feeding and housing and of emphasising the uselessness of male birds in flocks where eggs are not required for hatching. Live birds were used to illustrate each feature, and thus each phase of the industry was exemplified in a practical manner.

An effective exhibit was an orchard, poultry run and apiary conveying the idea that these three industries could be profitably combined. The hens enrich the soil and destroy insect pests thus assisting in the production of increased crops of clean fruit; they also obtain animal food in the orchard, and are afforded shelter by the trees, while the bees get materials for honey making from the fruit blossoms.

In the dairying division demonstrations of the work involved in the production of "Grade A" milk formed the principal feature. The interest taken in this development was gratifying. In addition, the methods to be adopted to improve the quality of creamery butter were indicated, and the comparative values of various dairy products illustrated.

The horticultural exhibits were practical as well as artistic. Attention was given to vegetable cultivation, fruit growing, destruction and suppression of diseases and pests, and bee-keeping. A miniature plot of many different varieties of cabbage suitable for

use in spring was a feature of much interest and comment. Demonstrations on the bottling and canning of fruit and vegetables were given at intervals, and were highly appreciated.

The marketing of poultry produce was another outstanding exhibit. Details in the handling, storing, grading and packing of eggs were illustrated. The use of a mechanical egg grader was demonstrated at intervals to interested audiences. The proper storing of eggs on the farm was shown by contrasting a suitable pantry with a room in which eggs were stored alongside odorous materials such as oil, apples and onions. The effect of heat on fertile eggs was illustrated, and the consequent importance of producing only infertile eggs during the summer months emphasized.

The research divisions staged interesting and instructive exhibits drawing attention to the work in progress, and indicating results. Preventive and curative treatment for some of the common and frequently appearing diseases of animals made a popular appeal to visitors inspecting the exhibit of the animal diseases division. An inspection of the exhibit prepared by the seed testing division left no doubt regarding the value of seed testing, or that the 3d per sample charged for testing is an investment that pays good interest. The plant disease division specialized in diseases of potatoes, celery, apples and gooseberries and emphasized the results obtained with actual specimens from treated and untreated crops. The value of plant breeding as a means of obtaining more useful varieties of crops was illustrated by the plant breeding division.

Exhibits arranged by the Greenmount Agricultural and Horticultural College and by the Ulster Dairy School illustrated the courses of instruction provided respectively for boys and girls at these institutions. Pupils of the Ulster Dairy School gave practical demonstrations at intervals on the proper killing, plucking, shaping and trussing of chickens and the proper packing of hatching eggs. Another popular feature of the Ulster Dairy School exhibit was a model farm dairy properly equipped for efficient home butter-making.

The statistical branch arranged an exhibit showing the changes in crop and animal production during recent times, and indicating how this information might be applied in detecting weaknesses of economic husbandry (see page 110 for further details).

A supply of literature for free distribution was provided and an inquiry bureau maintained.

The Ordnance Survey displayed specimens of the different maps, of interest to farmers, which are available for sale.

Visitors to the shows above mentioned evinced keen interest in the exhibits and in the discussions on their particular problems with the demonstrators attached to the various sections. In this connexion the Ministry desires to record its appreciation of the very valuable help rendered by the several instructors employed under the county agricultural schemes.

5. RESEARCH.

Chemical and Animal Nutrition Division.

As foreshadowed in the last report, the teaching work of this division in connexion with the University Faculty of Agriculture increased during the past year to what may be termed its normal maximum. As a consequence other sections of the work have suffered to the extent of a slowing down in the rate of development. Unfortunately the completion of the new buildings has been delayed, and the division is still working under the restricted and inconvenient conditions of accommodation mentioned in the previous report. Considerable demands continue to be made on the time of the staff in connexion with the planning and equipment of those sections of the building which are to house the division.

Soils.—The exacting nature of the other commitments of the division have made it impossible to do more than continue to provide advisory services in connexion with soil problems. The staff has, however, been strengthened by the provision of an additional assistant who will devote his whole time to investigation work on soil problems in Northern Ireland.

Animal Nutrition.—The division is still without central facilities for experimental work on animal nutrition. The organization and equipment of the experimental farm at Hillsborough is, however, making satisfactory progress, and it is now only a question of time until adequate facilities are available. Throughout the year the staff of the division have co-operated with the head of the Crop and Animal Husbandry Division in the planning and organization of the experimental station.

Baby Beef.—Further experimental work is suspended pending the provision of experimental facilities at the experimental farm. The application of the work to practice continues to develop. A record of this development has been kept and valuable data have been collected (with a view to publication) on several important practical aspects of the problem, such as the most profitable finishing live-weights and the relative suitability of Shorthorn and Aberdeen Angus sires.

Pigs.—Two reports on the work undertaken have been published in the first issue of the Ministry's Journal. Perhaps the most urgent problem in swine husbandry, affecting as it does the farmer, the curer and the consumer, is associated with the quality of the finished bacon. The problem is one of very considerable importance, because the maintenance of the export trade in bacon depends, like all other export trade, in a very large measure upon the quality of the product. The division therefore welcomed the opportunity of co-operating in an advisory capacity with a committee representing various interests, which has been formed with the object of investigating matters relating to the pig industry. In this connexion the division has

been responsible for the control of the experimental and recording work. It is already evident that the problem is not a simple one, and that factors other than feeding may contribute to the production of "tainted" bacon. One of the difficulties which has been met with is a lack of technical methods of measuring the influence of specific feeding stuffs and certain types of rations on the softness or otherwise of the bacon fat, and the general quality of the bacon. These technical difficulties must be solved before satisfactory progress can be made in connexion with this problem.

Poultry.—It is satisfactory to be able to record that the work on poultry nutrition has received practical recognition and support from the Empire Marketing Board. A report on the work accomplished and proposals for development was submitted through the Ministry to the Research Grants Committee of the Board. The Empire Marketing Board has intimated that it is prepared to provide a capital sum of £5,000 and an annual grant of £2000 per annum for a period of five years for the purpose of establishing and maintaining a Poultry Nutrition Research Station in Northern Ireland. Plans have been prepared for the erection of this station on a suitable site at the Hillsborough experimental farm. The new station, it is expected, will become the Empire centre for work on poultry nutrition, and will provide facilities for a far more rapid development of this work in Northern Ireland than has hitherto been possible.

The experimental work carried out at Stormont with the co-operation of the staff of the poultry division has been continued, and several new lines of work opened up. Fuller particulars are given in the report of the poultry division (page 41).

Co-operation with workers in this field in Scotland has been maintained, and the Joint Committee, the formation of which was mentioned in the previous annual report, has met twice during the year, namely in Belfast and Edinburgh. The experiment to determine to what extent a high or low plane of nutrition for the growing chick was reflected in a better egg yield and a larger egg during subsequent laying periods has been in progress for a year. The results so far available are somewhat surprising and difficult to interpret. The groups are being retained for a further period of a year with a view to collecting further data, but it will be necessary to repeat this particular experiment before satisfactory deductions can be made. A further experiment with chickens, commencing when the chicks were five days old and continuing until the laying stage was reached has shown that for chicken rearing purposes separated milk will give as good results as whole milk. This result has been confirmed by the team of workers in Scotland. At no stage of the growth of the chicks was a better result obtained from

whole milk, and it is therefore clear that milk fat can be replaced satisfactorily by the carbohydrates in the cereal ingredients of the ration, such as maize meal, pollard and Sussex ground oats.

A further experiment with laying pullets extending over a period of two years has been completed, and confirms the results reported in the previous annual report. There is now satisfactory evidence to show that size and number of eggs are factors closely linked up with the nutrition of the hen. In this respect the hen behaves in a similar manner to the dairy cow. A deficiency in the diet does not necessarily involve an immediate reduction in the number of eggs laid. The hen may maintain her output at the expense of the body reserves. If the deficiency is continued the eggs decrease in size, and ultimately there is a slowing down in the rate of production. The large egg hen is, therefore, not wholly a genetical problem.

Sheep.—Experimental work of a tentative character has been commenced with hill sheep with a view to ascertaining what can be done by nutritional means to (1) minimize the mortality rates, and (2) prevent the steady decline in the stock carrying capacity of the hill lands. The problem is not peculiar to Northern Ireland: it exists in an even more acute form in the hill districts of Scotland. In Scotland the problem is being tackled by the Rowett Research Institute, and the work in Northern Ireland is being carried out in collaboration with the Rowett Institute, although local conditions necessitate somewhat different methods of experimentation. It has been recognized that our hill grazing lands are continually becoming poorer because fertility is being steadily removed in the form of sheep and nothing is being returned in the form of artificial fertilizers. Sheep can only be maintained on mountain grazing by providing a large area for them to graze over and under such conditions the application of artificial fertilizers is beyond the realm of practical politics. The outlay involved in the application of a dressing of say 5 cwt. of basic slag per acre would be so heavy as to make it doubtful whether a return would be obtained in a normal lifetime. The plan being followed is the one suggested by the Rowett Institute, namely to feed the necessary minerals, chiefly phosphates and lime, in a suitable form direct to the sheep. The practical difficulties have been surmounted, and the cost is approximately 1/- per ewe per annum. It will require several years before definite results can be obtained. As already explained, the work in hand is only of a tentative character, because a systematic exploration of the problem would require the whole time services of a member of the staff.

Milk Testing.—The continued success which is meeting the Ministry's efforts to extend the milk recording movement is reflected in a still further expansion of the milk testing work. During the

year ended September 30th, 1927, 127,690 samples have been dealt with.

The following table shows the steady growth of this work :—

	No. of Associations.	No. of samples tested.
Year ended 30th September, 1924 ...	34	44,543
“ “ “ “ 1925 ...	42	76,938
“ “ “ “ 1926 ...	53	108,448
“ “ “ “ 1927 ...	60	127,690

The number of milk testing reports issued to farmers throughout the year was approximately 16,340 compared with 14,000 in 1925-26. Owing to improved organization the increase in work during the past two years has been handled without any increase in staff. The simplification of the analytical work is being further studied because it is realized that the milk recording movement will continue to develop, and each expansion necessitates either an increase in the staff and the facilities of the central milk testing station or a corresponding simplification of the analytical methods.

It is worthy of mention that the milk testing station is the only one of its kind in the British Isles, and is always of great interest to agriculturists from England and Scotland and Overseas.

Advisory Work.—The work continues to grow and to extend in scope. The majority of enquiries from farmers is in connexion with advice on the feeding of stock. The interest which is being shown in this direction has been most encouraging. Both the fertilizer and the feedingstuffs trades are making increasing use of this service, presumably because they realize that it is to their advantage in the long run to provide the farmer with a sound article which will fulfil his requirements.

Analytical Work.—A considerable amount of routine analytical work has been carried out in connexion with the Ministry's various schemes, such as surprise butter inspections, etc.

Lectures.—During the year several lectures have been given to various branches of the Farmers' Union and milk recording associations. The division also undertook teaching work in connexion with the refresher course for county agricultural instructors and the course for supervisors of milk recording associations.

General.—On the invitation of the Minister of Agriculture and Fisheries, the head of the division served throughout the year as a member of the Permanent Statutory Committee set up under the Fertilizers and Feedingstuffs Act, 1926. He has also served as adviser on behalf of Northern Ireland to the British representative on the Imperial Economic Committee. At the invitation of the Board of Agriculture for Scotland, the head of the division gave an address to the Scottish Agricultural Instructors' Refresher Conference at Glasgow on the production of baby beef, and, at the

invitation of the Harper Adams Agricultural College, a lecture on experiments on poultry nutrition to the Annual Poultry Conference.

PUBLICATIONS—

1. "*The Value of Mineral Supplements to the Breeding Sow.*" R. G. Baskett. Journal of Ministry of Agriculture, Northern Ireland. Vol. I.
2. "*Mineral Supplements and Vegetable Proteins in Bacon Production.*" R. G. Baskett. Ditto.
3. "*Silage Investigations.*" G. S. Robertson, F. Dickinson, and J. Houston. Ditto.
4. "*Experiments in Northern Ireland with Various Types of Phosphatic Fertilizers.*" G. S. Robertson. Ditto.
5. "*Poultry Nutrition Experiments in Northern Ireland.*" Journal Harper Adams Agric. Coll. 1927.

Crop and Animal Husbandry Division.

Teaching Work.—This division is responsible for the teaching work at Queen's University in connexion with the subjects of crop husbandry and animal husbandry, and during the University terms a considerable amount of time is taken up with this duty.

Advisory Work.—*Grade A (T.T.) Milk*—In the last annual report it was intimated that this division had temporarily taken over the work in connexion with Grade A (Tuberculin Tested) milk. This work has greatly increased during the year. It may safely be said to have passed the experimental stage, and that the production of milk of this standard is within the power of the average farmer. Four farmers at present hold certificates from the Ministry for the sale of Grade A (T.T.) milk, and a number of others are making preparations which will shortly qualify them to apply for certificates. These producers are spread over the following districts: Limavady, Coleraine, Portadown, Belfast and Newtownards. Numerous and frequent visits have been paid to these farmers to assist them in the alteration and adaptation of their buildings, installation of equipment and general routine of methods and management.

Public interest in Grade A (T.T.) milk is growing rapidly, and it is gratifying to be able to record that the four producers above mentioned have no difficulty in disposing of their milk, and are in fact unable to meet the demand.

Early in the present year a Bill was introduced in the Parliament of Northern Ireland to regulate the sale of milk under special designations and it is expected that the Bill will become law early in 1928.

Visits to farms and advice by letter have been given in connexion with a number of enquiries on a variety of subjects embracing feeding and management of cows and pigs, manuring and management of grassland, growing of green and forage crops, etc.

Research.—During the year the Agricultural Research Institute of Northern Ireland has been established at Hillsborough, and this division will be closely associated with the work of that station. The head of the division has devoted considerable time to the planning and supervision of the erection of new buildings, the adaptation of existing buildings, the stocking of the farm, and to the general management of the station.

Seed Testing and Plant Disease Division.

The work of the division has continued to expand, and has, in fact, reached a point beyond which it would be difficult to go with existing accommodation and equipment. The removal to new premises anticipated in the previous report has not been realized, and it is expected that the seed testing station in particular will again have difficulty in dealing with the winter rush of samples with its present barely adequate accommodation.

Seed Testing.

The number of routine samples examined, exclusive of experimental tests, was 2,696. Including experimental samples, the total number was approximately 3,500. The routine quota shows a slight decline compared with the previous season. This experience is in common with that of other official stations, and is no doubt due to the very short "purchasing season" of 1927, resulting from untoward weather conditions during the spring months.

The relative constitution, in percentages, of the chief groups of species tested is as follows:—

TABLE I.

Analysis of samples tested.

Kind of seed.	Per cent. of total.
Ryegrass	60.0
Other Grasses	11.7
Flax	8.8
Clover	14.6
Cereals	1.0
Roots, vegetables, etc.	3.9
	<hr/> 100.0

Of the total number of samples tested 78 per cent. was submitted by wholesale and retail seed merchants, 10 per cent. by the Ministry's official samplers, 7 per cent. by officers of public departments, and 5 per cent. by farmers.

No material expansion was recorded in the number of samples received from farmers. Farmers make far too little use of the station, although in this particular season the same cause would be

operative as mentioned above in connexion with the total number of samples received. With the object of making the results of tests more generally useful to this class of sender, the division has introduced a new type of report, wherein an approximation to the number of weed seeds occurring in one pound of the sample is given. These reports are having the effect of drawing attention to the large numbers of weed seeds often present in the form of a quite small percentage by *weight* of a sample, and also to the absolute necessity of having home grown seed machined. The latter point is well illustrated by the figures in Table II, showing average purities for the various grades of ryegrass. It will be noted, for example, that perennial ryegrass averaged only 94.2 per cent. purity, whereas it is well known that commercial ryegrass is normally between 97 and 100 per cent pure. The explanation of the low average figure lies in the fact that the station examines a considerable number of samples every year which have not been machined at the time of sampling. Such samples may show purity as low as 80 per cent. or even lower. It is desirable for farmers to realize that sowing unmachined seed is frequently a ruinous policy.

Table II gives the average and "modal" figures for the more important species. In those cases where the number of samples is too small to give an accurate figure, the "mode" is omitted, and in grasses only the results of "Continental" tests are used.

TABLE II.
Showing survey of results given by chief species.

Species.	No. in Average	Purity				Germination		
		Average %	Injurious Weeds No. of Samples containing:—		No. of Samples containing Ergot	Mode %	Average %	Hard Seed %
			Over 1%	Over 2%				
Per. Ryegrass	537	94.2	...	156	23	90	84	...
Italian " ...	120	96.8	...	51	10	89	83	...
Mixed " ...	135	95.3	...	42	3	87	81	...
Crstd. Dogstail	60	94.0	...	5	1	...	87	...
Red Clover ...	107	96.0	2	...	8	92	82	5
White Clover...	27	95.5	8	...	...	...	89	3
Wild White " ...	56	95.0	1	2	...	...	84	7
Alsike " ...	55	96.2	1	...	...	...	86	8
Flax ...	170	97.0	...	...	...	89	85	...
Timothy ...	23	99.5	...	...	1	...	93	...
Cocksfoot ...	46	91.8	...	...	...	...	93	...

Note—The "modal" figure is that which occurs most frequently in a series. Thus in the table Perennial Ryegrass showed a germination of 90 per cent. more frequently than any other figure. The "mode" thus represents the general quality of seed on the market more accurately than the "average."

General quality was, on the whole, good. Average figures for ryegrass were practically identical with those for the previous season. Tests to hand indicate that the growth of the present season's perennial crop will be higher than that of last year's produce. Dogstail samples were much superior in purity and germination to the previous year's crop, reflecting the better harvest of 1926. In other species the quality was remarkably similar to that exhibited by the previous season's produce.

International Seed Testing Association.—The head of the division being convener of the Sampling Committee of the Association, the station has carried out a comprehensive survey of sampling methods in vogue at other official stations, and has in hand a series of experiments having the object of improving technique. The station participated as usual in the Association's referee work. Results obtained by the several British official seed testing stations showed very satisfactory uniformity.

Congress of British Seed Analysts.—The head of the division attended the fifth annual conference of seed analysts held at the National Institute of Agricultural Botany, Cambridge, in July, and read a paper embodying the results of research upon the reaction of grass seed to atmospheric moisture conditions. This subject has an important bearing on seed testing methods in an area such as Northern Ireland, where the atmosphere is normally wet, and is liable to sudden changes in humidity. It also materially affects keeping quality in an absorbent seed such as ryegrass.

Advisory Work.—The number of advisory cases, as distinct from seed analyses, has made steady progress. Enquiries covered a wide field, including pasture formation and management, weed identification and eradication, degeneration of roots and other crop plants, shipping of seed, hedging, etc. A considerable number of enquiries were received relating to the husbandry of lawns, ornamental grounds and golf courses.

Research.

Little time has been available for laboratory research, and field trials were, in a number of cases, interfered with by the bad character of the weather during the summer. It has, however, been possible to carry most of the experiments mentioned in previous reports to a further stage, and three papers are at present in preparation embodying the results, accrued during about four years, from certain of these experiments.

Moisture Relations of Grass Seeds.—Sufficient observations have now been accumulated on this subject to support the conclusion that the ordinary allowance (1 per cent. increase or decrease) generally made in seed laboratories for variation in weight during a purity test is too little. On a larger scale it appears that ryegrass stored in sacks under conditions comparable with those of a warehouse can absorb or exhale moisture equivalent to a pound or

more per bushel according to the humid or dry condition of the atmosphere from day to day. A paper on this subject for publication is in preparation.

Biology of Meadow Foxtail.—Inclement weather conditions seriously interfered with out-door experiments, but progress has been made with regard to the life history of the parasitic midges attacking this crop. The period of maximum activity of the midge in Northern Ireland appears to be from the middle of May to the early days of June. A survey on broad lines carried out during the summer showed considerable variation in intensity of attack in different districts of the province and the results of this survey, together with observations on the life history of the grass and of its parasites, suggest that more use might well be made of foxtail than at present, if it were differently managed. A preliminary report is being prepared for publication.

Shipping of Seed.—Experiments have now been in progress for about five years on the behaviour of seed shipped through tropical waters, and a considerable mass of data has been accumulated. From it, it appears that a combination of high temperature with bad ventilation and a humid state of the atmosphere is responsible for losses in the germination frequently experienced. None of these factors alone seems sufficient to account for the damage often recorded. A report for publication is in preparation.

Wild White Clover.—The county Down wild white clover crop showed fair promise at the beginning of the season, but weather during the past summer was so inimical to harvest that the produce is not expected to compare very well with past crops. Further additions were made to the series of trials of wild white of different nationalities.

New Crops.—Experimental crops of several species new to Northern Ireland are being grown with a view to their possible introduction. Cocksfoot for seed, foxtail for seed, and Fuller's teal are among these. New markets for the straw of crested dogstail are being explored.

Plant Diseases.

Advisory Work.—Figures for the season 1926-27 show an increase on those of 1925-1926 with regard to work undertaken in this direction. The condition in which specimens have been received is improving, but the standard in many cases is yet much below that desired. It is essential when delicate portions of plants such as leaves and seedlings are being sent in for examination, that they be packed carefully in sphagnum moss or in moist blotting paper and enclosed in a substantial box. If these conditions are observed a quicker and often a fuller reply can be sent to the enquirer. During the year attention has been devoted to diseases of potatoes, flax, cereals, fruit, and vegetables.

The importance of growing varieties of potatoes immune to wart disease or black scab may be mentioned here, and the occurrence of the slightest trace of the disease should be reported immediately to the Ministry.

The changing of seed stocks in order to prevent loss of yield due to degeneration diseases such as leaf roll, mosaic, streak, etc., is an important factor in potato cultivation, and new stocks of seed should be obtained only from crops which are known to have been healthy and vigorous.

Research.

Potato Diseases.

During the season the ordinary or late blight (*Phytophthora infestans* de Bary) has been very severe, and thorough spraying has been amply repaid by both increased quantity and better quality of crop. The severity of attack, coupled with the lateness of the crop, would probably have resulted in a total loss in many districts had not spraying been carried out early in July. The spraying survey experiments which have been carried out at 30 centres in Northern Ireland since 1923 were concluded in 1926, and it is hoped to publish an account of the work very shortly. Further experiments have been carried out to compare wet spraying with dry spraying (dusting). New proprietary dusting powders are continually being placed on the market, and the object of making these tests was to compare their value with that of the Burgundy mixture (copper sulphate and washing soda) normally used. Results obtained so far indicate that although dusting is better than nothing, it is by no means so efficient as wet spraying and cannot, therefore, be recommended.

Pink Rot (*Phytophthora erythroseptica* Pethy. and Murphy). This is a disease of potato tubers which frequently causes serious losses. Tests are being made in the laboratory to determine the degree of resistance or susceptibility shown by tubers of lately introduced varieties.

Flax.

Samples of flax seed examined for seedling blight (*Colletotrichum linicolum* Pethy. and Lafferty) have again shown a high percentage of infection, and further investigations in connexion with this disease have been carried out in the laboratory.

Fruit.

An account of the experiments carried out up to the end of 1926 on the control of American gooseberry mildew (*Sphaerotheca mors-uvae* Berk.) was published in the first volume of the Ministry's Journal. A shorter account of the disease, together with control measures recommended, is given in the Ministry's leaflet No. 49. Further spraying tests with washing soda, Burgundy mixture, colloidal sulphur, etc., have been made, and it is hoped to publish the results obtained at an early date.

Results obtained in connexion with the control of apple scab (*Venturia inaequalis* Aderh.) by summer spraying have fully confirmed those registered in 1925. There is no doubt, especially with regard to the variety Bramley's Seedling, which is so much grown in Northern Ireland, that if apple growing is to be made a success summer spraying must be carried out. It must become an annual feature in the production of this crop, and must be looked upon as a routine operation. It means to the apple crop just what potato spraying means to the potato crop. Not only do the results show the fruit from sprayed trees to be of far better quality, but there is also a very great increase in the quantity of fruit produced. In three seasons results have been obtained which show clearly that the cost of spraying is insignificant, when compared with the market value of the increased yield.

The trees should be sprayed in February with one of the tar distillate spray fluids such as "Mortegg" or "Carbokrimp" in order to clean the bark and to kill the eggs of apple sucker and apple aphid. This winter spraying should be followed by three summer sprayings with excess lime Bordeaux mixture consisting of 2½ lb. copper sulphate or bluestone, 8 lb. best quality freshly burnt quicklime, and 40 gallons of water. The spray should be applied (1) at pinking, when the blossom clusters show most pink and before they open; (2) at petal fall, when most of the petals have fallen from the flowers, and (3) three weeks after petal fall. Full details of treatment will be found in Leaflet No. 33.

Experiments with other fungicides for the control of apple scab are in progress.

Spring Frosts.—Late spring frosts ruined the blossom in many districts. It is hoped to commence experiments to ascertain whether injury to the crop from spring frosts can be prevented.

Vegetable Crops.—In 1926 celery leaf blight (*Septoria apii* Bri. and Cav.) did not appear in many districts to any extent until late September. Two spraying experiments which have been carried out in county Down again confirm the efficacy of 2 per cent. Burgundy mixture (copper sulphate, 8 lb.; washing soda, 10 lb.; water, 40 gallons) used as a preventive spray fluid. The value of late sprayings with the fungicide, even after the disease has appeared, has been well demonstrated during the past season. Experiments carried out with seed steeped in formalin or hydrogen peroxide in order to kill the fungus on the seed indicate that a slight retardation of germination may be brought about by the steeping, and that it is not altogether a satisfactory measure in controlling the disease. Whether the seed be steeped or not, the resulting crop must be sprayed. As some indication of the times at which to spray, it may be stated that in the above experiment the celery was sprayed after being put out into trenches on July 4th, July 25th, August

17th and September 8th. In these cases the disease did not appear in the seed bed or the frame. If it does appear at these very early stages, spraying should at once be carried out.

Diseases of the Forest Nursery.—Further confirmation of the results already recorded in connexion with the control of seedling diseases of Sitka spruce and Douglas fir has been obtained, and it is hoped to publish a report on this work in due course. These experiments have been carried out at Baronscourt forestry centre, county Tyrone.

Publications.

"*The Control of American Gooseberry Mildew in Northern Ireland.*" By A. E. Muskett and E. Turner. *Journal of Ministry of Agriculture for N. Ireland*, Vol. 1, 1927.

Plant Breeding Division.

Field work in 1927 was practically confined to oats and flax. Sowing operations, though frequently interrupted, were carried out in fairly favourable conditions. A violent windstorm in June caused some damage which, furthered by a prolonged wet harvest season, resulted in the total loss of certain of the plots.

Visiting farmers were not quite so numerous as in the previous season, a circumstance for which the delayed hay harvest was probably responsible. Amongst other parties who visited the Station were a number of delegates from the Imperial Research Conference. The scope of the explanatory guide book issued to visitors was considerably enlarged this season to include notes on the varieties and a brief summary of the county instructors' variety testing activities. The locations of the season's trials were listed so that visiting farmers interested in certain varieties at Stormont could see how these behaved under their local conditions in the nearest trial. A list of growers to whom seed of these varieties had been sent in the spring and who would, therefore, have stocks of a high degree of purity for disposal was also included, so that those interested could ascertain their nearest source of supply.

Oats.

The cereal cage was almost entirely occupied by third generation hybrid selections from which it was hoped to isolate white, winter-hardy oats of suitable types, and high-tillering, fine-strawed, spring oats. The lines intended to provide material for the selection of winter-hardy types were sown in autumn so that their hardiness is automatically demonstrated by their survival and a number of most promising forms have been selected for further propagation. The spring types were not so good. Stooling capacity seemed to have been secured, but the desirable types were rather late-ripening, and here further crossing will probably be necessary to secure the type aimed at.

The checker-board tests of the previous season were repeated, and were rather more successful. Fairly reliable results from these checker-board tests should accrue about the same time as useful bulks of the new varieties being tested have been attained, since the testing and bulking processes are being run concurrently. Should the checkerboard results indicate that a variety is worth further consideration, then the first bulks will be utilized in variety trials throughout the counties to ascertain whether the variety shows a preference for any particular district or districts.

A new feature of the field work was inaugurated this season. Owing to lack of cage space, it is impossible to test on the checker-board plan all the various new strains that are on hand. Thus there are five selections from the Potato-Sandy cross, the relative merits of which can be decided only by actual test. Seven selections from Supreme x Victory, and six from Black Potato x Victory are in like case, and so on. So many different crosses are on hand that only one selection from each can be incorporated in the checker-board test and, since there is no assurance that the one chosen is actually the best, all the selections have to be tested against one another elsewhere. To meet this difficulty a series of replicate row tests has been arranged. Each selection is represented by seven rows of equal length and equal seeding. These are intermingled with other similar selections and are compared at various stages before and after harvest amongst themselves and with other selections of the same type. The replication is intended to overcome soil variation. Sixty-six varieties were so tested this season, but unfortunately a portion of the test was so badly laid early in the season and the subsequent weather conditions were so bad that the rows involved never ripened and had to be discarded. It is intended that this replicate row test will be an annual feature, new strains replacing those discarded, and as the standard varieties will remain unchanged, useful information regarding seasonal variation within varieties should accrue in time.

Of "garden" plots, which represent the third stage in the process of propagation to bulk from single plants, twenty-four were laid down in 1927. Only a limited number of varieties can be grown on to this stage, and still fewer can be accommodated in the larger "field" plots which represent the fourth stage. In 1927 thirteen such plots were grown. The produce of six similar plots from the previous season was this season most successfully propagated at the North-West Agricultural School, Strabane, and the produce of these "extension" plots is now available for variety trials and distribution. The following table shows the position at present :—

Number of Pure Line Varieties under Propagation.		Approximate amount of Produce from each Plot.
Replicate Rows	66	1 lb.
Garden Plots	25	15 lb.
Field Plots	13	2 cwt.
Extension Plots	6	1 ton

The principal varieties dealt with are :—

(a) Varieties which have reached extension plot stage :—

Potato, Sandy, Tyrone Tawny, Victory, Crown, King.

(b) Additional varieties which have reached the field plot stage :—

Banner, Golden Rain, Supreme x Victory, Clemrothery 4, Grey Winter, Black Potato x Victory.

(c) Additional varieties which have reached the garden plot stage :—

Poland, Potato x Sandy 60/1/2, Potato x Victory 32/1, Potato x Dollar 33/11, Dollar x Victory 21/1, Dollar x Golden Rain 2; White Cross 2/3.

Of the new hybrid varieties, Supreme x Victory; Potato x Dollar; Dollar x Victory, and Dollar x Golden Rain, are early-ripening types; Black Potato x Victory and White Cross are stiff-strawed varieties; while Potato x Sandy and Clemrothery are new varieties of the Potato type.

Flax.

The series of trial plots described in previous reports was repeated, and the propagation work on the same lines as that on oats was carried on. Until some data have accumulated regarding the varieties held at present, there seems to be no immediate need for the creation of new varieties. Meantime the varieties undergoing test are being propagated to bulk.

The increasing laboratory work occasioned by the introduction of replicate row tests has necessitated the provision of additional laboratory space. A store shed adjoining the present buildings has been adapted and furnished for this purpose, and has proved exceedingly useful.

Animal Diseases Division.

A considerable expansion in the work of the division has again to be recorded. The number of specimens and inquiries showed a large increase as compared with the previous year. The division may now be regarded as the centre in Northern Ireland where the latest information regarding animal diseases is available to agriculturists,

During the year under review the staff of the division became responsible for the teaching of veterinary science in connexion with the Queen's University of Belfast.

General.

1,633 specimens were received in connexion with advisory and research work as compared with 1,006 specimens submitted during the year 1925-26 and 371 specimens submitted in the year 1924-25. As in previous years only a few specimens were received from counties Fermanagh and Londonderry. About 70 visits were made by the staff during the year.

Bovine Diseases.

Table showing the results of examination of specimens :—

Disease.				Positive	Negative.	Total.
Tuberculosis, Milk Samples	...			17	206	223
Tuberculosis, Other Specimens	...			0	11	11
Epizootic Abortion, Blood Samples	...			39	119	158
Anthrax	...	...	...	1	7	8
Miscellaneous	...	...	...	—	—	94
Total						494

The table shows that tubercle bacilli were found in 7.6 per cent. of milk samples, the majority of which were submitted under the Bovine Tuberculosis Order. 29 samples of suspected tuberculosis which were negative on microscopical examination were tested by animal inoculation, the results being again negative in all cases.

The blood test for contagious abortion gave a positive result in about 25 per cent. of cases. 4 bulls out of 11 reacted to the test.

504 doses of vaccines were prepared for the treatment of epizootic abortion, garget and other diseases. The new vaccine introduced the previous year against epizootic abortion continued to be favourable received by veterinarians owing to the ease of administration.

Udder troubles were responsible for heavy losses during the year. It is not sufficiently recognized by farmers that garget is a contagious disease which may be spread by the hands of milkers and by flies. Any injury to the udder or teats, however slight, is always serious, and often predisposes the animal to felon infection. Anointing the teats with carbolyzed zinc ointment (1 in 15) is a useful measure in the summer time. Cows should be so treated after each milking. Dry cows and heifers should be brought in from grass every week for treatment.

Sheep Diseases.

Only 12 specimens were received, including braxy and sheep scab. The latter disease can, however, be usually detected without laboratory examination. Losses from liver fluke were slight. The wet conditions prevailing during the summer of 1927 were unfortunately favourable to the snails in which the fluke worm

develops, and increased losses from liver rot may be expected in the coming winter. A warning of this danger was issued through the press, together with advice regarding treatment with carbon tetrachloride. This drug is more suitable than male fern extract for sheep, special precautions being necessary only when they are receiving extra feeding. The remedy should not be used for cattle.

Pig Diseases.

82 specimens were received. Swine erysipelas was confirmed in only 1 of 16 suspected cases submitted. The majority of the specimens were pigs affected with "blows," a condition which is discussed under research work.

Poultry Diseases.
Table showing the results of examination of specimens:—

Disease	Antrim	Armagh	L'derry	Down	Fermanagh	Tyrone	Other sources	Total
Bacillary White } Chicks	27	19	12	76	4	15	2	155
Diarrhoea } Blood Samples	103	0	0	401	0	64	0	568
"Blackhead"	0	0	2	3	0	0	0	5
Coccidiosis	3	8	7	22	0	12	0	52
Fowl Typhoid	0	0	1	1	0	0	3	5
Gapes	0	1	0	40	0	2	0	*52
Roup	4	0	0	6	0	0	0	10
Tuberculosis	0	0	0	4	2	1	0	7
Miscellaneous	21	18	16	87	8	25	8	183
Total	158	46	38	†649	14	119	13	1037

† Includes specimens from the Ministry's Laying Test

* Includes wild birds

Bacillary white diarrhoea was confirmed on 67 farms, as compared with 33 farms in the previous year. As survivors in an outbreak may lay eggs containing the germ of the disease, they should not be used for breeding purposes until "carrier" birds have been eliminated. The latter can be recognized by means of a blood test. A scheme was introduced in the late summer whereby testing of affected flocks is carried out free of charge by the Ministry. Particulars of the scheme are set out on pages 129-131 of the appendices. 29 per cent. of the birds tested under the scheme reacted to the test.

Coccidiosis continued to cause heavy losses as in the previous year. The appearance of blood in the droppings of young birds is almost certain evidence of the disease. If the measures advised in the Ministry's leaflet were adopted immediately abnormal droppings are observed, losses from the disease would markedly decrease.

Miscellaneous Diseases.

Eight specimens representing diseases of horses, dogs, etc., were received. One specimen of suspected rabies in a dog gave a negative result.

Research Work.

Investigations regarding sterility in cattle were continued during the year. The division now finds that barrenness in cows is almost invariably due to chronic inflammation of the womb caused by the entry of germs into the organ at abortion or calving. Contagious abortion and lack of cleanliness at calving are the chief predisposing factors, and on their avoidance largely depends the fertility of cows. Owing to the heavy demands of other work, it was possible to devote only a small amount of time to the bacteriological investigation of sterility. Considerable progress was, however, made regarding the curative treatment of the condition by means of injections into the womb. Lectures and demonstrations on the examination and treatment of barren cows were given to over fifty veterinarians during the year. It is pleasing to record that the methods then advocated are now being successfully practised throughout Northern Ireland. About 70 sterile cows were treated by the staff during the year.

The experiment with anti-tuberculosis vaccine described in the 1925-26 report entered on its second year. All the vaccinated animals remained apparently healthy. While no conclusions can be drawn from this experiment till several years have elapsed, the results of important investigations are now available from France. These show that calves vaccinated at birth and thereafter annually were completely protected against natural infection. It is not too much to say that this vaccine promises the most hopeful solution yet offered to the problem of tuberculosis.

Braxy vaccination experiments were carried out during the year in conjunction with agricultural overseers in county Antrim. 1,150 sheep were vaccinated. The subsequent death rate from braxy amongst the vaccinated sheep was 0.22 per cent. as compared with 6.25 per cent. amongst the unvaccinated sheep. The results were regarded by sheep farmers as being very satisfactory, and towards the end of the year vaccination was voluntarily adopted by them on a large scale.

A disease amongst sheep known as "Headles" was reported to cause heavy losses in county Antrim. The condition was attributed locally to the eating of a poisonous plant which was identified as bog asphodel (*Narthecium ossifragum*). Affected sheep were procured and housed with healthy sheep. The latter did not contract the disease. The suspected plant was fed to healthy sheep without producing symptoms of the disease. As plants may be poisonous only at certain seasons, the experiment will be repeated at an earlier period next year.

The investigation regarding "blows" in pigs was continued. As the condition has been ascribed chiefly to diseases of the digestive tract, it is interesting to record that pneumonia was present in all of 62 cases examined. The part played by worms in causing "blows" was discussed in the last report. Research work during the year was specially directed to cases not due to worm infestation. Attempts to transmit this type of the disease to healthy pigs by contact and by the inoculation of material or germs from the diseased lungs were not successful. Several kinds of bacteria were recognized in the pneumonic lungs, a finding which is in agreement with the results obtained by other workers on pneumonia of young animals. The work carried out by the division supports the view that germs normally present in the air passages may set up disease of the lungs when the resistance of the animal is lowered from any cause. The most important weakening influences in the case of pigs are undoubtedly dampness and cold. The prevention of "blows" must depend almost entirely on improved methods of management.

In connexion with the scheme of testing for bacillary white diarrhoea, it was not considered desirable to adopt the usual practice of starving the birds for twenty-four hours prior to bleeding. As failure to starve the birds may render them difficult to test, a variation in the technique of the test recommended by American workers to meet this difficulty was investigated. The methods advocated were not found to be useful.

The results obtained in previous years regarding the infestation of wild birds with gape worms were again confirmed. The worms were found in 93 per cent. of rooks.

A member of the staff co-operated during the year in cancer research work.

Lectures, etc.

Nine lectures and demonstrations were given by the staff of the division during the year. Some of the lectures were subsequently published in the scientific and lay press.

Poultry Division.

The research work of the division has been continued in co-operation with the chemical and animal nutrition division and experiments in connexion with the Ministry's exhibit at the Royal Ulster Agricultural Society's Show at Balmoral were again carried out.

Nutrition Experiments.—The provision of additional pens has made possible the normal expansion of the work outlined in the previous annual report. As all the pens are designed for the purposes of the laying trials it is not possible to work with groups of more than eight laying birds. This limitation necessitates the duplication of every experiment. Previous work has shown that no reliance can be placed upon results obtained over a short laying period, and that it was essential to carry out any experiments with laying hens for a period of at least two years. It will be realized therefore that these two limitations make the collection of reliable data a somewhat lengthy process.

Growth Experiments with Chickens.—A further experiment has been carried out with six groups each consisting of twenty-five chicks. The experiment commenced when the chicks were five days old, and was continued until the pullets reached the laying stage. The first group received a mash consisting of mixed cereals only. The same mash was supplied to all the other groups, but with the following additions:—Group 2, 10 per cent. meat meal; Group 3, whole milk ad lib.; Group 4, separated milk ad lib.; Group 5, dried milk; Group 6, synthetic milk prepared by extracting earth nuts and adding certain minerals to the resulting emulsion. The results showed a marked superiority in favour of the whole milk and separated milk groups. Throughout the whole course of the experiment slightly better results were obtained from separated than from whole milk. Similar results have been obtained by the co-operating Scottish team of workers. The knowledge that the whole of the butter-fat may be removed from milk without in any way impairing its value for chicken feeding purposes should be of considerable value to poultry keepers. It would appear that at no stage does the growing chick require additional supplies of oil or fat other than that normally present in a diet of mixed cereals. The addition of cod-liver oil or foods rich in cod-liver or other oils to the chicken mash would seem to be a questionable practice under the conditions existing in Northern Ireland. It was originally intended to carry on the pullets in each of these groups for a two years' laying period, in order thereby to

duplicate the experiment on the effect of the nutrition of the chick upon the subsequent egg yield, which is at present in progress. For this purpose sex linked chicks were specially obtained from England. Owing apparently to the impurity of the Wyandottes used in the cross, the chicks were a very mixed lot and the experiment was therefore terminated when the pullets reached the laying stage.

Experiments with Laying Pullets.—Two experiments each of two years' duration to ascertain (1) whether the mineral content of the ration for laying pullets is of importance, and (2) whether the type of protein influences the egg yield, have been completed. The results will be published in the next issue of the Ministry's Journal. It may, however, be of interest to state that the experimental results demonstrate (1) that animal proteins such as those contained in fish meal can be successfully replaced by vegetable proteins; (2) that the composition of the ration has a marked influence on the size of the eggs, on the number of the eggs, and on the condition of the birds; and (3) that free access to unlimited supplies of oyster shell does not provide the laying bird with all the minerals required.

An experiment to compare the relative value of various types of vegetable proteins with fish meal is in progress. This experiment is also being carried out by a team of Scottish workers. A joint report will shortly be issued.

The Nutrition of the Growing Chick and its effect on the subsequent Egg Yield.—One year's laying results are now available. Contrary to expectation it was not until near the end of the laying year that any differences in the various groups began to appear. Some of them are of a rather unexpected nature. The experimental groups will be continued for a further year, and the experiment repeated at the first favourable opportunity.

The addition of varying doses of iodine to the ration of third year hens has been tried with a view to ascertaining whether the fall in the egg record during the third laying year is due to partial exhaustion of the thyroid. The results obtained so far are inconclusive.

Laying Test.—The fifth laying test, which was conducted at Stormont concluded on 16th September. There were 72 pens of pullets of various breeds under test. Each pen consisted of six pullets. The increase in the average egg production which was reported for the previous year was maintained. It was found necessary to amend the rules governing the test, and a rule was adopted which renders a pen producing more than 300 second grade eggs ineligible for any award; of the 72 pens competing 25 exceeded this figure.

The silver cup presented by the Ministry for the pen of pullets laying eggs of the highest market value during the test, the

Ministry's winter egg prize, and the silver challenge cup presented by the Scientific Poultry Breeders' Association were won by a pen of White Wyandottes the property of a station-holder under the county Down committee of agriculture.

The highest breed average was attained by the White Leghorns and there was a marked decrease in the number of second grade eggs laid by the pullets of this breed, the percentage for the year under review being 42.9 as compared with 56 for the previous year.

The silver medal offered for the best pullet in the test was won by a White Wyandotte, also the property of a station-holder.

A detailed report on this test has been prepared, and will be published in booklet form.

For comparison, the numbers of pens from each county in each of the five tests conducted at Stormont are tabulated below :—

	1922-23 Pens.	1923-24 Pens.	1924-25 Pens.	1925-26 Pens.	1926-27 Pens.
Antrim	3	16	17	11	13
Armagh	9	12	19	19	10
Down	23	34	24	29	24
Fermanagh	1	2	2	2	4
Londonderry	3	2	3	2	5
Tyrone	6	5	7	8	16
Totals	45	71	72	71	72

The following table shows the number of pullets penned, number of eggs laid, cost of food, return for eggs and gross profit over cost of food in each of the tests :—

48 weeks ended	No. of pullets penned	No. of eggs laid	Average No. of eggs per bird	Average value of eggs per bird	Cost of food per bird	Average price of eggs per dozen	Gross return per bird over cost of food
16th Sept., 1923	270	51,025	188.98	s d 32 6.9	s d 9 10	s d 2 0.8	s d 22 8.9
15th Sept., 1924	426	77,383	181.6	33 0.5	9 10.25	2 2	23 2.25
16th Sept., 1925	432	78,565	181.86	31 10.7	10 1.6	2 1.2	21 9.1
16th Sept., 1926	426	80,798	189.66	30 6.64	10 1.8	1 11.1	20 4.84
16th Sept., 1927	432	81,732	189.19	26 9.2	10 2.2	1 8.3	16 7

Preparations have been made for the sixth test commencing on 16th October, 1927; 24 new houses and runs were erected during the year in order to provide accommodation for the increased entries received for this test.

World's Poultry Congress and Exhibition.—The third World's Poultry Congress and Exhibition, arranged under the auspices of the International Association of Poultry Instructors and Investigators, was held at Ottawa, Canada, from the 27th July to the 4th August, 1927. These congresses take place every three years, the first having been held at The Hague in 1921, and the second at Barcelona in 1924. Sections illustrative of the various features of the poultry industry in the participating countries, including exhibits of live birds, etc., are staged, and specialized lectures are given by leading experts.

At the Ottawa Exhibition the Ministry staged an exhibit in the British Section in conjunction with the Ministry of Agriculture and Fisheries, and were represented at the congress by Mr. Sydney Smith, Principal Marketing Inspector, and Miss J. Scott, Marketing Inspector. In appreciation of its contribution to the Exhibition the Ministry was awarded a handsome plaque by the Congress.

Agricultural Research Institute of Northern Ireland.

After careful consideration the Government agreed to the establishment of a central agricultural research station for Northern Ireland at the Great Park, Hillsborough, county Down, for the purpose of carrying out research in animal nutrition and conducting experiments and investigations relating to animals and to crops. An agreement dated 28th October, 1926, made between the Ministry of Finance, the Ministry of Agriculture, the Faculty of Agriculture of Queen's University, the Ulster Farmers' Union and the Ulster Agricultural Organization Society, provided for the formation of a Board of Trustees consisting of three representatives each of the Ministry of Agriculture and the Ulster Farmers' Union, two representatives of the Faculty of Agriculture and one representative of the Ulster Agricultural Organization Society.

The agreement contained a condition that the requisite capital and endowment fund—the interest from which would be applied by the Board towards defraying the maintenance and upkeep charges of the station—should be provided by Parliament. Legal effect was given to this agreement by an Act of Parliament of Northern Ireland which incorporated the Trustees under the name of "The Agricultural Research Institute of Northern Ireland." The Act, entitled "The Agricultural Research Station Act (N.I.) 1927" (17 Geo. 5, ch. 1), received the Royal Assent on 31st March, 1927, and the Trustees immediately entered upon their duties.

The Board of Trustees, as in the case of analogous institutions in Great Britain, is an independent body and not under the control of a Government department. Arrangements have been made, however, for the provision of facilities for carrying out, at the Hillsborough station, research work in connexion with the Ministry's research divisions.

6. SPECIAL HORTICULTURAL EXPERIMENTS.

An experiment was carried out during the year in county Down to obtain further information regarding the value of certain sprays in the control of black currant mite. A considerable period will elapse before conclusive results can be expected, and the experiment will be continued during subsequent seasons.

Capsid Bug Experiments.—These experiments were commenced in 1926 on "Grenadier" apple trees and were continued on the same plots in 1927.

Encouraging results were obtained from the use of sprays containing nicotine, nicotine sulphate and soft soap. Fair crops were produced on the sprayed plots, while the unsprayed trees gave practically no mature fruit. The crops were graded and weighed and the damage caused by capsid bugs was estimated. The results of these experiments show that, in the case of "Grenadier" apples, damage by capsids can be largely reduced and the yield of fruit considerably increased by spraying the trees with the mixtures mentioned. Recommendations as to preparation of sprays are contained in the Ministry's leaflets Nos. 10 and 33.

In the report for 1925-6 it was recorded that a combined spray—Bordeaux mixture containing excess lime with nicotine or nicotine sulphate—was used on one plot (varieties Bramley's Seedling and Lane's Prince Albert) attacked by apple capsids and apple scab, and that good results were obtained. In 1926-7 the combined spray was used on eight plots, and in every case the good results of the previous trial were confirmed, the yields being larger and less damaged either by apple capsids or apple scab than where the trees were unsprayed or sprayed with Bordeaux mixture alone, or with nicotine and soft soap washes alone. Further particulars regarding results obtained from the use of Bordeaux mixture in the control of apple scab are given on page 33.

Ovicidal or Egg Killing Washes.—The testing of various brands of tar distillate washes was continued in 1926-7. Sixteen brands were included in these tests. A severe frost early in May was responsible for the destruction of large numbers of nymphs of apple sucker and it was not possible therefore to estimate accurately the value of the sprays used, as far as the destruction of insect eggs is concerned. Several of the brands under test did not clean the bark of the trees. During the summer these trees were divided into three plots, one plot being sprayed three times with Bordeaux mixture containing excess lime; another with a dilute Burgundy mixture three times; a third plot was not sprayed. The trees sprayed with the Bordeaux mixture three times gave considerably increased yields and better fruits. The use of Burgundy mixture was not satisfactory. Particulars regarding the preparation and application of Bordeaux mixture and tar distillate sprays are given in Leaflet No. 33.

Manuring Apple Trees:—This test was continued on lines similar to those of previous years.

Poultry in Orchards:—This experiment was continued and useful results recorded. In the portions of the orchard in which poultry were kept the trees produced larger crops and better fruit than those in the portion from which poultry were excluded. The experiment will be continued.

In many localities the exceptionally severe frosts at the beginning of May destroyed the unopened trusses of fruit blossoms on the variety Bramley's seedling. Other varieties such as Lord Derby, Bismark and Royal Codlin were not so seriously injured.

7. MARKETING.

Eggs.

In the Ministry's report for last year particulars of further legislative proposals in regard to the marketing of eggs were given in some detail. Those proposals are now embodied in the Marketing of Eggs Act (Northern Ireland), 1926, which came into operation on the 1st January, 1927. This Act completes a code which provides for the control of the methods of marketing by licensed wholesale dealers, the sale of clean fresh eggs only by producers, retailers and wholesale dealers, the purchase of hen eggs by weight, and the prevention of fraudulent practices on the part of all persons dealing in preserved, cold-stored or pickled eggs.

Compliance with the Rules. The number of persons licensed as wholesale dealers under the Act is 2,069, an increase of 133 over the preceding year. Progressive dealers have been fully convinced from personal experience that compliance with the regulations is in their own interests, and persistent contravention of the prescribed conditions is now uncommon. By the Act of 1926 offences against the rules are made offences against the principal Act, and the Ministry has now, in addition to the power of revoking or suspending of licences, the power to institute legal proceedings against wholesale dealers. The publicity attaching to prosecutions is probably a greater deterrent against breaches of the rules than the amount of fines imposed. In all 56 wholesale dealers were prosecuted during the year.

Another feature of the new Act—the inspection of cases of eggs in transit—has proved most effective in improving the trading methods of licence holders. In many instances inspections at premises of the wholesale dealers of cases in preparation for despatch showed that grading or quality or packing was below standard, but the statement, which could not easily be controverted, was often made that the consignments had still to be subjected to one or more processes that would make them comply with the Ministry's requirements. The consignments are now inspected after they have

left the control of the consignor, and apart from the punitive action which has of necessity been taken in bad cases, the possibility of such inspection has resulted in a considerable improvement in general. In making these inspections the Ministry is careful to occasion the minimum of interference with the despatch of consignments, and the arrangements now in force were decided upon only after full discussion and by agreement with the representatives of the carrying companies on whose premises cases are taken for examination.

Testing. In point of freshness steady progress has been made. Quality is, of course, liable to decline as prices rise—the temptation to hold stocks being great. That over-holding is less prevalent, however, is obvious from the freedom with which Northern Ireland eggs have sold at the period when in previous years the demand was dull and from the abrupt rise in prices returned (reflecting reduced supplies) as compared with the gradual rise when over-held stocks were in past seasons gradually unloaded on to the market. Moreover, exporters have been giving closer attention to testing, and they have readily availed themselves of the instructional facilities offered by the Ministry.

Grading. Realizing the importance of meeting the market requirements in the matter of close grading most exporters now use grading machines. Northern Ireland eggs now hold a commanding position in the British market—for a period when supplies were short the excess in price over that of the next best was remarkable—and the main factors on which that success is based are quality and grading.

Packing. The conditions as to packing have been complied with in a satisfactory manner. It was with reluctance that certain short-sighted dealers accepted the importance of marketable appearance as a factor in successful trading, but where competition makes attention to detail essential, sound packing and attractive appearance rank next only to quality and grading. To meet a demand for packing in cubicle cases the Ministry authorized the use of specially constructed cases of that type for the heavier grades. Another development was the packing in cartons, each holding one dozen or less, as a special line. This method of marketing has distinct possibilities, as it meets the demand for the warranted good quality egg. Special packing cases were authorized for the carriage of cartons.

Considerable attention was given to the improvement of the quality of cases made from native timber. A register of approved box makers has been opened, to which were admitted only those timber merchants who had suitable plant for the manufacture of the cases and who signified their willingness to turn out cases in accordance with the Ministry's specifications.

Investigations and experiments have been conducted with various types of fillers and flats with a view to the improvement of their suitability for use in cold-storing and to the attainment, if possible, of a greater degree of security in transit. These investigations are being continued.

Producers and Retailers. The original rules prohibited the sale of stale or dirty eggs by wholesale dealers, and it was left to the dealer to exert pressure on the producer. To an extent the responsibility placed on the wholesale dealer was unfair—refusal of unsatisfactory eggs usually entailed loss of a customer and diversion of trade to less scrupulous competitors. It is now an offence to sell stale or dirty eggs. The improvement in quality and cleanliness of eggs marketed in areas where proceedings against poultry keepers have been taken has been noticeable, and the fact that producers are now liable to prosecution has enabled the Ministry to exert pressure on wholesale dealers to ensure closer observance of their obligations. Retailers of eggs also come under this provision, and proceedings where necessary have been instituted against them with salutary effect.

A natural result of the administration of the Act so far as it relates to stale eggs has been a decrease in the number of cases where sanitary sub-officers of local authorities have found it necessary to institute proceedings for the sale of eggs unfit for the food of man.

On the question of the quality of eggs from poultry keepers, the experience of wholesale dealers goes to show that fertility in eggs has been responsible, to a greater extent than is generally believed, for staleness during the summer months. The removal of male birds from flocks is the obvious remedy, but usage dies hard, and producers have not to any considerable extent adopted this suggestion which has been repeatedly brought to their notice by the Ministry. Further efforts must, however, be made to decrease the number of fertile eggs marketed in warm weather if progress is to be maintained.

Purchase by Weight.

Hen eggs intended for resale must now be purchased by weight. This system is obviously equitable, but more important still it offers an inducement to poultry keepers to produce and market large eggs. Eggs of the 14 lb. grade are often difficult to sell at remunerative prices in competition with cheap foreign supplies, and the reduction of the numbers of this grade marketed will increase the possibilities of profit to the trade in Northern Ireland. Certain areas where the system of purchase by weight was in force as a voluntary measure prior to the passing of the 1926 Act are remarkable for the high proportion of large eggs produced.

It must be recorded that some dealers, retail and wholesale, did not take kindly to the new system. Supervision of actual purchase

is exceedingly difficult, and cases of evasion are hard to detect, but with the assistance of members of the Royal Ulster Constabulary the law in the matter is now being generally observed.

Preserved, Cold-stored and Pickled Eggs. The law in regard to the labelling of eggs which have been subjected to these processes is on the whole complied with, and there are grounds for the belief that the mixing of cold-stored eggs with fresh for sale as fresh is not practised to any extent here. During the year the Ministry has, however, had occasion to institute proceedings against retail merchants for breach of the labelling regulations.

The provisions requiring owners or occupiers of premises where eggs are preserved, cold-stored or pickled to furnish the Ministry with returns as to the delivery, ownership and despatch of consignments deposited on their premises has now been extended so as to apply to all persons dealing in such eggs. The Ministry has, therefore, full information of the quantities in hands, which is found useful in pursuing enquiries as to the possibility of evasion of the labelling requirements. The returns submitted are confidential.

Marketing Assistance. With the assistance of the Empire Marketing Board and in co-operation with the Ministry of Commerce, this Ministry displayed at the British Industries Fair and the Ideal Homes Exhibition held in London in the spring of the year representative sample cases of eggs and exhibits of other kinds of agricultural produce. Representatives of the Ministry attended these exhibitions to deal with trade enquiries, and a substantial volume of new business was secured. Sample cases were also shown in connexion with the marketing exhibit arranged by the Ministry of Agriculture and Fisheries at important agricultural shows in England as part of that Ministry's educational campaign to improve the home trade.

Influential distributors in Great Britain were kept fully posted with any information likely to further the reputation of Northern Ireland produce, and judging from the interest that has been evinced in many quarters it is safe to say that traders in Great Britain are now turning naturally to Northern Ireland when high quality is a consideration.

General.

The stage has now been reached when it is possible to appraise, with some accuracy, the effects achieved by the administration of the Acts. On grounds of practicability the conditions laid down have been proved to be satisfactory; and by complying therewith traders are merely satisfying the demands of the distributors in Great Britain. The confidence engendered by the supply of uniformly high class consignments has led to enhanced prices and

an extended demand. It is also of interest to note that the remarkable increase shown last year in the poultry population of the province has been maintained.

Pork.

As the trade in pork is largely a seasonal one extending from September to April the Northern Ireland pig and pork industry was not affected to any material extent by the Order issued in August, 1926, by the Imperial Ministry of Agriculture prohibiting the importation to Great Britain of animal carcasses from the continent. In view of the date when the Order came into operation there was not sufficient time for farmers to adapt their arrangements so as to be in a position to meet in the 1926-27 season the demands of the cross-channel buyers of fresh pork. The Ministry, however, took occasion to bring prominently to the notice of the farming community the future possibilities of a trade of this nature created by the embargo, and in anticipation of the season September, 1927, to April, 1928, steps were taken to acquaint farmers as to the marketing methods which would have to be adopted to satisfy the requirements of the London market. The result of these efforts is shown in the fact that a large number of consignments of fresh pork marketed on the lines indicated by the Ministry are now being sent regularly from Northern Ireland to Great Britain.

In March, 1927, the Ministry convened a special conference of persons interested in the breeding; feeding and marketing of pigs as well as representatives of the bacon curing industry to consider what steps should be taken to promote the development of the Northern Ireland pig and pork industry. The conference unanimously decided to appoint a committee representative of every aspect of the industry to investigate the various difficulties connected with the industry. The committee issued in September an interim report which contains a number of recommendations in regard to feeding and breeding problems and the small pork trade, and this report has been extensively circulated. At the request of the committee, the Ministry has undertaken a series of experiments (a) to ascertain the effect of different rations on the quality of bacon and hams produced by pigs of the Large White Ulster type and (b) to compare the bacon and hams produced by pigs of the Large White Ulster and Large York breeds when fattened under similar conditions.

The committee point out that so far it has not been possible to arrange with the Northern Ireland bacon curing firms to publish prices a few days in advance so that farmers might have some guide as to the return to be obtained for bacon carcasses. It is hoped, however, that it will ultimately be found practicable for advance prices to be supplied for the benefit of the farming community.

During the past year there have been many instances of sudden and violent fluctuations in the price of pork, but it is considered that the growing tendency in certain districts to market pigs alive combined with the development of the cross-channel trade in fresh pork may help towards a better stabilization of prices.

Railway Rates and Transit.

The question of damage and delay during transit to consignments of Northern Ireland produce continued to receive the Ministry's careful attention, and there is reason to believe that the efforts to eliminate the causes of complaint have met with a fair measure of success. While some cases of damage and delay still come under notice, there is no doubt that the more general adoption of the improved methods of packing and the Ministry's representations to the carrying companies have combined to create an improvement in the carriage of agricultural produce.

The carrying companies in England made certain increases in the scale of rates as from the 1st February, and this change in railway charges has had an effect on the basis of charges for traffic from Northern Ireland to Great Britain.

Horticultural Produce (Sales on Commission) Act (Northern Ireland) 1927.

This Act, which came into operation on the 31st May, is intended to regulate in Northern Ireland the sale on commission of horticultural produce. It provides that where horticultural produce is consigned for sale on commission and the salesman makes any charge by way of commission or otherwise, he shall keep a record (open to inspection by an accountant nominated by the consignor) of the name of the consignor and of the prices paid. Further, the salesman is required to furnish the consignor with a statement of the prices received for the various classes of produce, the commission or other selling charges, and the amounts, if any, paid or payable on behalf of the owner in connexion with such sales. The provisions of the Act do not, however, apply unless the owner or consignor sends to the salesman before the sale an advice note specifying the nature and description of the packages consigned and the contents thereof.

The Act enables producers to ascertain definitely the prices obtained for produce sold on commission, and it is hoped will lead to the adoption of better grading and packing methods. Hitherto producers had complained that prices obtained in the case of fruit, when sold on commission, showed no difference in favour of produce properly packed and graded.

Merchandise Marks.

An Act of the Imperial Parliament under the title of the Merchandise Marks Act, 1926, to require an indication of origin to be given in case of certain imported goods, received the Royal Assent on the 15th December, 1926.

Section 1 of the Act provides that imported goods bearing the name or trade mark of any manufacturer or trader in the United Kingdom, or the name of any place or district in the United Kingdom, shall not be sold unless the name or trade mark is accompanied by an indication of origin. In connexion with this section, the provisions of which came into operation on the 15th June, 1927, a circular was issued by the Ministry to all creameries in Northern Ireland pointing out that the sale of butter, not produced in the United Kingdom of Great Britain and Northern Ireland, in wrappers containing the name of, or reference to, any particular creamery, without adding words to indicate the origin of the butter, would be an offence.

The Act further provides for the setting up of Standing Committees to enquire into applications for Orders in Council requiring the marking of imported goods on exposure for sale, with an indication of origin. After a report of the Committee in respect of any class or description of goods has been considered by the "appropriate Department," that Department has power to take steps for the promulgation of an Order in Council prohibiting the sale, or exposure for sale in Great Britain and Northern Ireland, of the goods unless they bear an indication of origin. Sec. 2 (5) provides further that, on the recommendation of the Standing Committee, the appropriate Department may recommend that such an Order in Council may require the marking of imported goods at the time of importation.

One of the Committees set up has been charged with enquiries relating to agricultural and horticultural produce, and the produce of any fishing industry. The appropriate Department in the case of applications for the marking of such produce is the Minister of Agriculture and Fisheries, the Secretary of State for the Home Department, and the Secretary of State for Scotland acting jointly. Under the arrangement whereby in matters relating to the appropriate Department, Northern Ireland is represented by the Secretary of State for the Home Department, the views of this Ministry were obtained in regard to all applications for an Order requiring the marking of agricultural and horticultural produce.

The Act provides that no reference shall be made to a Committee unless the appropriate Department is satisfied that the application substantially represents the interests of manufacturers, producers, traders, dealers, users or consumers or of any body of wage earners.

Notices as to the reference to the Committee of applications for marking are inserted in the "Belfast Gazette," and when the actual

dates are fixed for the holding of the enquiry, due notice is given in the Northern Ireland press.

Several applications for the marking of agricultural and horticultural produce, including eggs, fresh apples and pears, honey and oatmeal, have been considered by the Standing Committee, but during the period covered by this report no Order in Council had been promulgated in respect of any agricultural commodity.

Sale of Food and Drugs Acts, 1875 to 1907.

During the year ended 30th June, 1927, 4,738 samples of milk, buttermilk, butter, margarine and cheese were taken by local inspectors under the Acts as compared with 5,199 samples taken during the previous twelve months. One hundred and seventy-four prosecutions were instituted and one hundred and fifty-one convictions obtained, the fines amounting to £253 13s 0d, the corresponding figures for the twelve months ended 30th June, 1926, being, prosecutions, two hundred and fifty-six; convictions, one hundred and ninety-nine; and amount of fines, £347 10s 7d.

The following are particulars in regard to the samples taken by local inspectors in the year ended 30th June, 1927 :—

Nature of sample	Number of samples taken	Number of prosecutions	Number of convictions	Penalties imposed (exclusive of costs)
Milk	2,387	94	76	£177 17 6
Buttermilk	684	48	47	63 18 0
Butter	1,055	32	28	11 17 6
Margarine	316	—	—	—
Cheese	296	—	—	—
Totals	4,738	174	151	£253 13 0

Three new premises, viz., two in the county borough of Belfast, and one in county Tyrone, were registered during the year under Section 9 of the Margarine Act, 1887, and Section 7 (4) of the Sale of Food and Drugs Act, 1899, for wholesale dealings in margarine. As no registrations were cancelled during the year under review there was on the 30th June, 1927, a total of one hundred and forty-four registered premises in Northern Ireland. These premises are located as follows :—

County Borough of Belfast	...	...	105
County Borough of Londonderry	...	...	10
County Antrim	...	...	11*
County Armagh	...	...	7
County Down	...	...	6
County Fermanagh	...	...	1
County Londonderry	...	...	2
County Tyrone	...	...	2

*Includes one margarine cheese factory.

No registrations or cancellation of registrations of butter factories, under Section 1 of the Butter and Margarine Act, 1907, took place during the year. The number of such registered premises in Northern Ireland is thirteen.

Seventy-seven applications were received for approval, under Section 8 of the Butter and Margarine Act, 1907, of fancy or descriptive names for use in connexion with margarine; approval was given for sixty-nine names and withheld for the remaining eight names.

8. AGRICULTURAL SCHEMES.

- (a) Poultry-keeping.
- (b) Butter-making.
- (c) Horticulture and Bee-keeping.
- (d) Prizes for Cottages and Small Farms.
- (e) Grants to Agricultural Societies.
- (f) Horse-breeding.
- (g) Cattle-breeding.
- (h) Registration of Dairy Cattle.
- (i) Milk Recording Associations.
- (j) Swine-breeding.
- (k) Sheep-breeding.
- (l) Goat-breeding.
- (m) Creameries.

New Agricultural Development Fund.

A special grant of £40,000 was made available by Parliament during the year for expenditure over a period of years through the agency of county committees of agriculture in connexion with schemes for the improvement of live stock, viz., cattle, black-face sheep, and swine. This sum of £40,000 has been placed to the credit of a fund held by the Ministry of Finance and called "the Agricultural Development Fund."

The Ministry has decided that the total expenditure for the period ending 31st March, 1928, shall not exceed £5,000, and that future expenditure shall be at the rate of £7,000 per annum. On this basis of expenditure the Fund of £40,000 will enable the particular live stock schemes to be carried on for at least six years.

Having carefully investigated the needs of each county and after taking into consideration all the relevant factors the Ministry allocated the following amounts for the various counties in connexion with the schemes for the improvement of black-face sheep and cattle in 1927-28 :—

County.	Improvement of Mountain Sheep.	Improvement of Cattle.	Total.
	£	£	£
Antrim ...	315	615	930
Armagh ...	75	540	615
Down ...	270	575	845
Fermanagh ...	—	855	855
Londonderry ...	225	495	720
Tyrone ...	315	720	1,035
	<hr/> 1,200	<hr/> 3,800	<hr/> 5,000

With regard to cattle, the Ministry has decided that the money provided under this head shall be devoted to the placing out of bulls, which are up to premium standard, on special terms with selected individuals in poor districts before the 31st March, 1928. Milk recording associations will not be eligible to participate in this arrangement. The districts in which these bulls are to be located have been determined in consultation with county committees, who have been supplied by the Ministry with maps showing the boundaries of these areas. It is anticipated that the average cost of the "special term" bulls will be about £45, but the maximum commitment by a committee in respect of any one bull will be £55. If the cost price exceeds £55, the excess must be borne by the purchaser. The bulls will be bought by the county committees and sold to the selected applicants at one-third cost (payable in three equal instalments). The person chosen to keep a bull will be eligible at the end of each season, provided certain conditions are complied with, to receive a premium equivalent to the amount of the instalment paid. In short, at the end of three seasons a selected applicant will have the bull for nothing—the only expenditure which he will have to bear will be the annual cost of insurance of the animal.

In connexion with the placing of these "special term" bulls next season the regulation providing that no two bulls of the same breed shall be located in the county within three statute miles of each other must be observed.

In addition to the "special term" bulls (estimated at about 85—90) which it is anticipated will be provided in the early part of 1928, the Ministry has set aside approximately £2,700 for the location of about 150 additional premium bulls (of the breeds approved in scheme No. 2) in the Six Counties in 1928/29. The county committees have been informed that the funds for the provision of these additional premium bulls are being given on the distinct understanding that the needs of districts not already well supplied with premium bulls will be specially considered and that every effort will be made to secure applicants in such districts. Furthermore, it has been decided that an application from a milk recording association for one premium bull shall automatically be

granted, and that a county committee may grant two or more premiums to the same association. An application from a milk recording association for a premium for an Aberdeen Angus bull will not, however, be granted unless there is a high-class dairy bull already available in the district for the use of members of the association. An exception to the regulation regarding the location of bulls of the same breed within three statute miles of each other will be permitted in the case of premium bulls held by associations, as the use of such bulls would be confined to cows belonging to members. It may here be mentioned that the scheme under which the Ministry has hitherto provided high-class dairy bulls for milk recording associations at one-third cost price has now been discontinued, and in future associations requiring bulls should apply for premiums to their respective county committees of agriculture.

As a further measure of assistance the Ministry is prepared to grant loans to selected applicants and also to members of milk recording associations in connexion with the provision of premium bulls.

County Schemes.

Within recent years considerable developments have taken place in the work of some of these schemes, particularly in those relating to poultry-keeping, cattle-breeding, sheep-breeding and milk recording associations. With the exception of sheep-breeding and goat-breeding, for which it has not been found necessary to print detailed schemes, all the schemes are published separately, and copies may be obtained free of charge on application to the Ministry. It is not possible to insert the details of each scheme in the following pages, but the essential features are summarized in the remarks prefacing the tables illustrating the operations of each particular scheme.

The schemes are revised annually, and any changes that seem desirable as the result of a review of the operations in the previous year are embodied. The county committees of agriculture are invited to submit any recommendations or amendments that they think necessary, and the Ministry is also aided in this matter by a number of advisory committees composed of prominent practical agriculturists. In addition, it has the assistance of a consultative committee, on which each county committee of agriculture is represented, whose special function is to co-ordinate the work of the advisory committees.

The expenditure entailed by the operations of the ordinary county schemes was met from two sources :—

- (a) the Ministry's Vote, and
- (b) the rate levied locally for agricultural purposes.

(a) *Scheme of Instruction in Poultry-keeping.*

The system of small farming characteristic of Northern Ireland is eminently suitable for poultry rearing and egg production as an adjunct to the ordinary farming operations. Recent statistics reveal the interesting fact that poultry farming is practised upon a more extensive scale in Northern Ireland than in any other part of the British Isles; hence it is not surprising to realize that there are few of the Ministry's schemes which make a wider appeal to the farming community than the schemes relating to poultry-keeping.

At least one instructor in poultry-keeping is employed in each county in Northern Ireland, and the whole time of this officer is devoted towards promoting improvement in poultry-keeping. During the period under review ten instructors were at work, seven of whom acted in the dual capacity of instructors in poultry-keeping and butter-making, although all ten instructors are fully competent to give advice on both subjects. The instructors' time is utilized in delivering lectures and conducting classes in poultry-keeping; numerous visits are also paid to farms and poultry runs, and practical instruction when desired is given on all matters pertaining to poultry-keeping to residents in the county. The routine work in connexion with the poultry stations scheme also comes within their province, e.g., inspecting poultry stations established under the scheme; reporting on hatching results in connexion with these stations; assisting selected applicants to procure suitable stock birds and marking all selected birds and keeping a stock register. Various other duties, such as carrying out experiments approved by the Ministry in connexion with poultry-keeping, assisting in the blood testing of stock for bacillary white diarrhoea, etc., are also entrusted to them.

The operations of the scheme during 1926-27 were as follows :—

County	No. of instructors	No. of lectures	No. of visits	No. of courses of instruction given	No. of daily classes in these courses.	No. of pupils on class attendance register
Antrim	2*	11	1,389†	7	108	126
Armagh	1*	6	736†	1	14	15
Down	2*	9	1,136†	5	76	90
Fermanagh	1	—	668	2	23	32
Londonderry	2*	23	1,328†	8	112	131
Tyrone	2	18	1,093	8	120	144
Totals	10	67	6,350	31	453	538

*Also employed under the scheme of instruction in butter-making.

†Inclusive of visits in connexion with the scheme of instruction in butter-making

The operations of the poultry stations scheme are detailed below. The fundamental aim of this scheme is to effect a gradual improvement in farm poultry generally, and the manner adopted is to provide facilities whereby poultry keepers—especially those in backward districts, and those engaged in poultry-keeping in a small way—may secure eggs from high-grade stock at a reasonable price. With this object in view a limited number of premiums is offered to persons approved by the county committees to keep egg-distribution stations. Three classes of stations are provided for, namely, hen and duck, goose, and turkey, and the maximum value of the premium is £7, £2 and £3 respectively. Sittings of eggs of pure-bred hens, ducks and geese (Embden) are supplied from these stations to persons in rural districts at prices which are fixed by the county committees, and, in the case of turkey stations, the mating of turkey hens with approved pure-bred American Bronze turkey cocks is arranged at a small fee, usually 1/- per service. In the case of hen and duck stations the minimum number of sittings that must be distributed in order that the full premium may be earned is 70, twelve eggs being counted as a sitting. The maximum price per sitting is 2/6, but a committee may, if they so desire, fix a higher price in exceptional circumstances. It is stipulated, moreover, that hen eggs that are less than 2 oz. in weight must not be distributed under this scheme. In the case of goose stations, if less than twelve sittings are distributed, the premium is reduced in proportion—three eggs count as a sitting, and the price charged must not exceed 3/- per sitting.

In order that this scheme may be administered to the best advantage care is taken to ensure that only the right type of person is selected to keep stations, and no applicant is selected by the committee unless the instructor in poultry-keeping for the district has furnished a report to the effect that the applicant is a suitable person to keep a station, and that the housing, stock, etc., on the proposed station are adequate for the purposes of the scheme. In this connexion provision is made in the scheme for the making of grants by a committee to a new station-holder towards the cost of providing (a) a suitable wooden fowl-house or (b) birds of an approved breed to stock the station. These grants are generally equivalent to 50 per cent. of the actual expenditure, but the maximum contribution allowable in respect of the erection of a fowl-house is £8, while the grant in respect of the provision of birds must not exceed £7.

Premiums are restricted to birds of the following breeds :—

Hens : Light Breeds. White Leghorn, Black Leghorn, Brown Leghorn, Black Minorca, Ancona.

General Purpose Breeds. White Wyandotte, Rhode Island Red, Buff Orpington, Barred Plymouth Rock, Light Sussex.

Ducks. Indian Runner, Khaki Campbell, Aylesbury.

Provision is also made for certain hen and duck stations to be selected as trapnesting stations, and an additional premium, not exceeding £2 10s, is granted to station-holders who are so selected. The holders of these special stations must undertake to trapnest their birds during the winter months, in accordance with certain regulations laid down by the Ministry. Only unmated pullets must be trapnested, and the birds must be kept separate from the remainder of the station flock, and marked with sealed and numbered rings. The trapnesting season must begin in either October or November and continue for at least three months from the date of commencement. The station-holder is also required to keep a careful record of the number and weight of eggs laid by each pullet. At the end of the season only the best of the trapnested pullets, as judged by both the size and number of the eggs laid, are transferred to the station flock. It is hoped that this scheme will effect a gradual improvement in station flocks by providing breeders with reliable information as to which birds are the most suitable for breeding purposes. It may be cited as an illustration of the progress made under this scheme that there were a total of thirty-two trapnesting stations approved during the year under review, as compared with nine stations in 1924, the year in which this innovation was introduced.

The following table gives particulars in regard to the distribution of sittings of eggs and the number of hens mated in connexion with turkey stations during the year :—

County	No. of egg distribution stations		Sittings of eggs distributed (12 eggs per sitting)	No of egg stations distributed (goose)	Sittings of eggs distributed (3 eggs per sitting)	No. of turkey stations	No. of hens mated
	Hens only	Hens and ducks					
Armagh	24	16	3,910	11	177	41	1,441
Antrim	17	7	2,477	11	156	34	1,444
Down	26	12	4,290	18	279	58	1,878
Fermanagh	13	17	2,476	15	217	33	1,727
Londonderry	19	12	3,201	16	253	34	1,349
Tyrone	22	14	3,437	22	330	62	2,963
Totals	121	78	19,791	93	1,392	262	10,802

Table showing the numbers of sittings of eggs (by breeds) distributed from the various poultry stations in each county (in this return duck stations are shown separately but are not recognized for premium purposes unless combined with a hen station) :—

Poultry Stations by Breeds.
Hen and Duck Stations.

Breed	Antrim		Armagh		Down		Fermanagh		Londonderry		Tyrone		Total	
	No. of stations	No. of sittings	No. of stations	No. of sittings	No. of stations	No. of sittings	No. of stations	No. of sittings	No. of stations	No. of sittings	No. of stations	No. of sittings	No. of stations	No. of sittings
Wh. Wyand. ...	18	1542	13	1280	17	2020	9	670	10	972	17	1513	84	7997
Wh. Leghorn	10	1124	6	624	7	632	6	510	8	745	3	160	40	3795
B.P. Rock ...	2	137	...	...	...	...	1	75	2	149	...	...	5	361
B. Orpington.	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bl. Leghorn	...	...	...	...	...	...	1	80	...	...	2	165	3	245
Br. Leghorn	...	...	...	...	2	122	2	116	...	...	3	227	7	465
Bl. Minorca	1	116	2	180	5	353	3	210	2	200	...	...	13	1059
Light Sussex	3	231	...	...	1	130	2	97	1	107	5	500	12	1065
R.I. Red	6	535	3	281	5	676	3	265	8	810	6	666	31	3233
Ancona	...	...	...	...	1	114	3	167	...	...	...	...	4	281
Ind. Runner	11	121	1	16	7	78	11	171	10	108	12	147	52	641
Khaki Campbell	5	104	3	65	3	49	6	115	1	38	1	15	19	386
Aylesbury	...	...	3	31	2	116	...	...	1	72	1	44	7	263
Totals	...	3910	...	2477	...	4290	...	2476	...	3201	...	3437	...	19791

The amounts paid in premiums to holders of the stations under this scheme in 1927 were as follows :—

County	Hen and duck stations	Goose stations	Turkey stations
	£ s. d.	£ s. d.	£ s. d.
Antrim	290 5 0	22 0 0	105 6 6
Armagh	165 7 6	21 14 4	85 0 0
Down	281 14 0	35 1 0	147 5 0
Fermanagh	201 6 0	29 6 8	82 10 0
Londonderry	197 13 1	30 12 2	85 0 0
Tyrone	258 15 6	44 3 4	155 0 0
Totals	1,395 1 1	182 17 6	660 1 6

Poultry Demonstration Farms. The three poultry demonstration farms which were selected by the Ministry early in 1924 were again subsidized during the year. Detailed particulars of these farms were given in the Ministry's fourth annual report, the respective owners being Lieutenant-Colonel F. S. N. Macrory, D.S.O., Ardmore Poultry Farm, Limavady; Miss D. Robertson, Dogleap, Limavady, and Mr. G. C. Downey, Helen's Bay, county Down. The owners of the farms undertake to furnish detailed accounts to the Ministry, and from these data the Ministry hopes to be in a position to publish particulars which will be of assistance to persons intending to specialize in commercial poultry-keeping. In addition, the farms are open to inspection by organized parties of visitors during the year. Selected pupils from the Ulster Dairy School are also sent to these farms for a final course of training in practical poultry management; the course is of a year's duration, and the Ministry makes an allowance of 15/- per week to each pupil during her period of training. At the end of about six months the pupils are usually interchanged between the farms in order to give them wider experience. In this connexion it is satisfactory to record that the majority of the pupils, at the termination of their training, have obtained positions as assistants on commercial poultry farms in Northern Ireland.

Bacillary White Diarrhoea. Owing to the occurrence of bacillary white diarrhoea amongst chickens in Northern Ireland the Ministry felt it necessary to adopt special measures with a view to preventing the disease becoming widespread. Chicks which survive an outbreak of this disease commonly become "carriers" and when they reach laying age produce eggs containing the germ of the disease. Consequently, it is essential that "carrier" birds should be eliminated, and the only reliable means of detecting such birds is the blood test. The Ministry, accordingly, introduced a scheme providing for the blood testing of breeding stock in flocks where there is reason to suspect the existence of this disease. Under this scheme the services of the instructors in poultry-keeping are

utilized for the taking of blood samples which are forwarded to the Animal Diseases Division for test. At the present time the test is carried out by the Ministry in the case of those flocks where the existence of bacillary white diarrhoea has been determined by laboratory examination. It is hoped that full advantage of the scheme will be taken by poultry breeders in the future, and that in time it will help considerably towards eradicating the disease from flocks in Northern Ireland.

Particulars of the egg-laying competition (pullets) held by the Ministry during the period under review will be found at page 42 of this report.

(b) *Scheme of Instruction in Butter-making and Home Cheese-making.*

This scheme provides for the appointment of at least one instructor in butter-making and home cheese-making in each county in Northern Ireland. The duties of the instructor comprise visiting home dairies and giving advice on such matters as the proper ripening of milk and cream, etc.; holding classes in butter-making and cheese-making in selected districts; giving demonstrations in the making of butter and cheese, and, generally, devoting her whole time towards promoting improvement in butter-making and home cheese-making in the county.

This scheme is in operation in counties Antrim, Armagh, Down and Londonderry, and seven instructors are employed. The following table illustrates the work carried out by the instructors under this scheme:—

County	No. of instructors	No. of lectures	No. of visits to private dairies	No. of courses of instruction given	No. of daily classes in these courses	No of pupils on class attendance register
Antrim	2	3	*	3	44	36
Armagh	1	—	*	3	30	24
Down	2	—	*	2	32	20
Londonderry	2	—	*	7	104	84
Totals	7	3	—	15	210	154

*Included in number of visits paid in connexion with the scheme of instruction in dairy-keeping.

A detailed account of the assistance rendered by the Ministry in connexion with the manufacture of butter at creameries will be found at page 83 of this report.

(c) *Scheme of Instruction in Horticulture and Bee-keeping.*

This scheme aims at furthering the interests of horticulture and bee-keeping, and provision is made for the appointment of at least one instructor in each county who must devote his whole time to assisting persons engaged in such pursuits. The instructor is

required to deliver lectures on horticultural subjects, and to visit gardens and orchards and give practical demonstrations on planting, pruning, grafting and spraying of fruit trees. His other duties include the giving of instruction in and demonstrations on the grading, packing and marketing of fruit; visiting apiaries to impart instruction in the principles and practice of modern bee-keeping; and giving lectures and practical demonstrations to students attending winter agricultural classes. Furthermore, an instructor may be required to act as judge in connexion with the scheme of prizes for cottages and small farms in a county other than that of which he acts as instructor or of which he is a native.

During the period under review the scheme was in operation in all the Six Counties, and a total of nine instructors were employed. The following table gives particulars of the work performed by these instructors :—

County	No of instructors employed	No. of visits & demonstrations	No. of lectures delivered	Total attendance at lectures	No. of demon- stration plots	No. of vegetable plots
Antrim	2	1,448	20	928	14	52
Armagh	2	1,562	23	1,063	13	19
Down	2	1,615	18	222	20	57
Fermanagh	1	589	8	120	19	10
Londonderry	1	767	12	270	39	3
Tyrone	1*	300	36	372	—	20
Totals	9	6,281	117	2,975	105	161

*The comparative smallness of the operations in this country is accounted for by the fact that the instructor in horticulture resigned on 31st May, 1927, owing to ill-health, and a successor was not appointed by the committee during the period under review.

The apple orchards competitions, the object of which is to encourage and foster fruit growing in the Six County area, were again conducted under the auspices of the Ulster Horticultural Society, and, as usual, the Ministry gave permission to one of its inspectors to act as judge. Two challenge cups—the Aberdeen challenge cup for the best orchard of apples not exceeding three acres, and the Gibson challenge cup for the best orchard of apples not less than one acre and not exceeding three acres—silver and bronze medals, and money prizes are provided by the Society for competition. The following county committees contributed the under-mentioned sums towards the expenses of this competition :—

County Antrim	£20
County Armagh	£20
County Down	£15
County Tyrone	£10

In connexion with fruit growing in county Armagh it is of interest to record that this season a spraying experiment was carried out on Bramley apple trees on the farm of Mr. Felix Coyne, Clintyclay,

Tullyroan, Moy, and very striking results were obtained by the use of certain sprays. Some of the sprayed trees carried a full crop of fruit, whereas the unsprayed trees produced practically no crop. The experiment provided excellent material for demonstrations on the successful results to be obtained by proper spraying methods, and in September two public demonstrations were arranged. The demonstrations were widely advertised and evoked much interest—at the first there was an attendance of about forty fruit growers, and at the second over sixty.

(d) *Prizes for cottages and small farms.*

Under the provisions of this scheme prizes may be offered for well-kept cottages with gardens or for well-managed small farms. In the cottage section the competition is open to bona-fide cottagers resident in rural districts, with the exception of holders of certain demonstration plots under the scheme of instruction in horticulture, while only bona-fide farmers, who are rated occupiers in rural districts and who derive their means of living mainly from farming are eligible to compete in the small farm section.

The scheme was in operation in counties Antrim, Down and Fermanagh, the judges in each case being the horticultural instructors from adjacent counties. None of the above-mentioned counties provided for awards to small farms, competition being confined to cottagers.

County	Number of entries			No. of prizes awarded in each class			Total amount expended in prizes
	Class I. cottages	Class II. Ex-servicemen	Class III. Championship	Class I.	Class II.	Class III.	
Antrim	62	19	10	35	12	4	£ 69 5 0
Down	85	..	12	51	...	4	130 0 0
Fermanagh	14	4	.	10	4	...	29 0 0

It might be noted that the following points are taken into consideration by the judge in making his awards: (a) cleanliness and general order of cottage and premises; (b) cultivation of garden, etc.; (c) arrangement of manure heap; (d) general management and care of livestock; (e) management of bees.

(e) *Grants to Agricultural Societies.*

This scheme aims at stimulating interest in agricultural matters generally, and under its provisions agricultural, poultry, horticultural and kindred societies, not conducted for profit, may receive

from county committees subsidies in aid of their annual summer shows. Small subsidies may also be given to societies to promote ploughing matches.

This scheme was adopted in each of the six counties during the year, and the following table illustrates the extent of its operations—

County	Amount allocated by county committee	Number and value of subsidies estimated to be paid in respect of:			
		Agricultural shows		Skilled labour competitions (ploughing matches, &c.)	
		Number	Value.	Number.	Value.
	£		£ s		s.
Antrim	460	9	433 0	2	10 0
Armagh	206	2	100 0	4	30 0
Down	475	11	460 0	2	15 0
Fermanagh	95	4	95 0	—	—
Londonderry	125	5	97 10	3	18 0
Tyrone	300	6	265 0	2	11 10
Totals	1,661	37	1,450 10	13	84 10

As a result of the introduction of the Finance Act (Northern Ireland) 1927, this scheme underwent an important revision in the year. Previously complaints had been received from subsidized societies to the effect that the amount levied by way of Entertainments Duty on payments for admission to their shows where attractions in the nature of sports were provided practically counter-balanced the subsidy granted in aid of the show. As a result of representations from this Ministry provision was made in the Act for the exemption from Entertainments Duty of agricultural shows held by societies in receipt of grants from county committees of agriculture provided (a) that the show is for the purpose of promoting the interests of agriculture and is held by a society (not established or conducted for profit), and (b) that the show consists mainly of exhibits, displays of skill, or performances of such a character as would, if the entertainment consisted solely thereof, render the entertainment exempt from duty under any of the Finance Acts of the Parliament of Northern Ireland.

The Ministry gave an assurance to the Minister of Finance that it would not sanction grants from county committees to agricultural societies in aid of their shows where any attraction which was normally subject to Entertainments Duty was provided, and in future show societies will be required to submit a full programme of the show to the Ministry for scrutiny, in addition to the prize schedule.

It will still be necessary for show societies to make application to the Commissioners of Customs and Excise, Custom House, London, for exemption from Entertainments Duty.

The necessary amendments were embodied in the revised scheme for 1928 (see appendix p. 142), and it was made clear that, in future, a society would not be eligible for a grant under this scheme in aid of its show if there was provided at the show any entertainment or attraction which was normally subject to Entertainments Duty, such, for example, as races with horses, dogs or other animals, or items involving the use of mechanically propelled vehicles or side-shows which have not been approved by the Ministry. The holding of an approved pony gymkhana, however, would not debar a society from being eligible to receive a subsidy.

Consideration was also given during the year to the clashing of dates in connexion with the holding of agricultural, etc., shows. It had been observed from time to time that in some instances a show society chose a date for its annual fixture which happened to coincide with that selected by another society for the holding of a similar show, and this overlapping naturally had an adverse effect on the success of both shows. In future an attempt will be made to obviate occurrences of this nature and secretaries of subsidized show societies will be required to notify their respective county committees of agriculture before the 1st of December in any year of the dates on which they propose to hold their shows in the following year. A list of provisional dates will then be drawn up for the information of the show secretaries and each society would thus be in a better position to select a date not already chosen by another society.

The Ministry also directly made special contributions during the period under review to the funds of the following societies to assist in the various activities for which the organizations named are responsible :—

	£
Ulster Farmers' Union (Educational Committee) ...	800
Royal Ulster Agricultural Society	460
Ulster Agricultural Organization Society, Ltd. ...	200
† North-West of Ireland Agricultural Society ...	100
Ulster Horticultural Society	75
Ulster Goat Society	50
Ulster Ram Breeders' Association	50

†An additional sum of £30 was paid to this Society in connexion with the purchase and erection of a "clean milk" shed at the Society's summer show in 1925 and its subsequent re-erection at the show in the following year.

A grant of £40 was also promised to the Utility Poultry Society of Northern Ireland in aid of its inaugural show to be held in November, 1927.

(f) *Horse Breeding Scheme.*

The usual exhibition of stallions competing for premiums under the scheme was held in February, 1927, in the Royal Ulster Agricultural Society's Showyard at Balmoral. The animals competing

at this fixture were those which, as result of the annual inspections of stallions offered for licence under the Horse Breeding Act (Northern Ireland), 1926, were regarded as up to premium standard. Two classes were provided at the exhibition, one for Thoroughbreds, the other for Clydesdales, and the stallions in each county were placed in order of merit in their respective classes. From these lists of eligible stallions the several county committees selected animals for the award of premiums, which are payable at the end of the season, subject to compliance with the regulations of the scheme.

In addition to premiums offered by county committees, prizes to the total value of £100 were offered by the Royal Ulster Agricultural Society for the seven best stallions of each breed. Thirteen Thoroughbreds and twenty-three Clydesdales competed for these prizes and for premiums.

All the sires attending the exhibition were regarded as up to premium standard and, with the exception of one Thoroughbred and two Clydesdales, were selected by county committees for the award of premiums. In addition, one Clydesdale and one Thoroughbred, which were not able to travel to the exhibition, and one Clydesdale, which was imported from Scotland subsequent to the exhibition, were also selected for the provisional award of premiums.

The usual arrangements were made under which the Railway Companies having termini in Belfast carried the stallions free of charge in one direction, the cost of the carriage in the other direction being defrayed by the Ministry.

A register was published giving particulars of the 36 premium stallions located in the several counties during the year.

The following table shows the amount allocated and expended by the several county committees, together with the distribution of premiums in the various counties : —

County	Amount allocated by county committee	Amount expended by county committee	Number of premiums paid by county committee in respect of			Total
			Thorough-bred stallions	Clydesdale stallions	Irish draught & half-bred stallions	
Antrim	£ 440	£ 323	2	5½	—	7½
Armagh	150	150	1	2	—	3
Down	600	540	6	4½	—	10½
Fermanagh	180	180	1	2	1	4
Derry	240	240	1	4	—	5
Tyrone	320	320	2	4	1	7
Total	1,930	1,753	13	22*	2	37*

*In certain instances, where premium stallions travelled for service in two counties, premiums were paid jointly by the committee concerned. Thus, one Clydesdale stallion premium was paid partly by Antrim county committee and partly by Down county committee, and two Clydesdale premiums were paid partly by Antrim and partly by Londonderry county committee. This explains the half-premiums in above table.

The maximum value of premiums fixed in the scheme for Thoroughbred stallions was £70, and for any other breed £45. The values of premiums adopted by each county committee in 1927 are

County	Thoroughbred	Clydesdale	Irish draught and half-bred
	£	£	
Antrim	65	35	—
Armagh	70	40	—
Down	60	40	—
Fermanagh	60	40	40
Derry	60	45	—
Tyrone	60	40	40

The Londonderry county committee made a regulation requiring the mare owner to hand to the stallion owner prior to the service of the mare a veterinary surgeon's certificate that the animal was sound. No special regulations were made by any other county committee.

In the following table particulars are given of the number of mares served by premium stallions under the Scheme in 1927 :—

County	Mares served by Thoroughbred stallions	Mares served by Clydesdale stallions	Mares served by Irish draught and half-bred stallions
Antrim	190	310	—
Armagh	31	125	—
Down	432	177	—
Fermanagh	40	92	50
Derry	65	241	—
Tyrone	41	190	50
	799	1,135	100

A subsidy was granted by the Ministry towards the purchase of a high-class Clydesdale stallion, which was located in Limavady district, county Londonderry. A loan was also granted to the purchaser of this sire, who was required to undertake to keep the animal for five years in the district in which it was located.

Pony Breeding in the Glens of Antrim.

In August, 1927, at Cushendall and Carnlough two exhibitions were held of the progeny of the Pony stallions which had been introduced to the Glens district of county Antrim in the 1923, 1924, and 1925 seasons. There were five classes as follows at each centre :—

- Class 1. Two-year-olds of the Glen Pony type.
- „ 2. Two-year-olds not of the Glen Pony type.
- „ 3. Yearlings of the Glen Pony type.
- „ 4. Yearlings not of the Glen Pony type.
- „ 5. Foals at foot.

The total number of animals competing in each class was as follows :—

Class 1.	8
„ 2.	10
„ 3.	14
„ 4.	12
„ 5.	25
<hr/>	
Total	69

Prizes to the total value of £62 were paid by the Antrim county committee.

In the opinion of the judges, these exhibitions have demonstrated that the policy pursued by the Ministry in placing high-class Welsh Cob sires in the Glens district has been justified.

(g) *Cattle-breeding Scheme.*

The object of this scheme is to promote the improvement of cattle breeding, which constitutes the premier branch of agriculture in Northern Ireland. As an example of the importance of this industry to farmers in Northern Ireland it may be stated that the value of the export trade of cattle from Northern Ireland ports in 1927 amounted to £2,992,870.

The fundamental aim of this scheme is to induce bull owners to keep suitable sires of a high degree of excellence, and the *modus operandi* is that provision is made for the payment of premiums by county committees to selected farmers who, in return for the premiums, undertake to keep bulls which have been passed as up to premium standard by the Ministry's Live Stock Inspectors, and to comply with the regulations specified in the scheme. Bulls of the following breeds are eligible for the award of premiums :—Shorthorn, Registered Dairy Shorthorn, Registered Dairy non-pedigree Shorthorn, Aberdeen Angus, Hereford and Galloway. Bulls of the latter breed are, however, ineligible for premiums if placed in a locality outside the eastern mountainous area of county Antrim as prescribed by the Ministry. The value of the premiums varies with the type of bull selected, but the maximum premium payable, subject to the regulations of the scheme, is £20 for a pure-bred Registered Dairy Shorthorn bull, if both sire and dam are registered; £17 if the dam only is registered; £15 for a pure-bred Shorthorn, Aberdeen Angus, or Hereford, and £13 in the case of a Registered Dairy non-pedigree Shorthorn bull or a Galloway bull.

The selection of bulls for first year premiums takes place only at approved Spring shows and sales, and it has been the practice of the Ministry to recognize the two Spring sales held annually under the auspices of the Royal Ulster Agricultural Society and the North West of Ireland Agricultural Society at Balmoral and Londonderry respectively as the approved centres for Northern Ireland. The Spring show and sale held each year at

Ballsbridge under the auspices of the Royal Dublin Society is also recognized, and is availed of principally by applicants in Northern Ireland who are selected to keep Aberdeen Angus bulls. The inspection of two-year-old and older bulls for continuation premiums takes place each year at local centres which are arranged by the Ministry, due regard being paid to the convenience of the premium holders. As a general rule premiums are not awarded to four-year-old bulls, except in the case of Registered Dairy bulls, but provision is made in the scheme for premiums to be granted to bulls five years old and upwards in special circumstances.

The following table shows the regulations made by the several county committees in regard to service fees, etc. :—

County	Service Fees	Services		Valuation of holding of cow owners
		Yearling bulls	Older bulls	
		Minimum No.	Minimum No.	
Antrim	2/6 in all cases	30	40	not limited
Armagh	5/- where valuation exceeds £50 2/6 where valuation does not exceed £50	30	40	not limited
Down	5/- where valuation exceeds £50 2/6 where valuation does not exceed £25	30	40	not limited
Fermanagh	4/- where valuation exceeds £25 but does not exceed £100	30	40	not to exceed £100
Londonderry	4/- in all cases	30	40	not limited
Tyrone	3/6 in all cases	30	40	not limited

Particulars of the amounts allocated by county committees for premiums to bulls and the estimated expenditure for each county are as follows :—

County	Amount Allocated	Estimated Expenditure	Total number of Bulls standing for premiums in county
Antrim	£ 1,450	£ 1,383	92
Armagh	704	560	41
Down	1,570	1,509	87
Fermanagh	550	545	35
Londonderry	570	511	32
Tyrone	1,200	1,000	65
Total	6,044	5,508	352

The number of premium bulls in 1927 was 18 less than the corresponding figure for 1926, the reason for the diminution being that at the spring sales the prices ruled high and applicants waited for a fall which did not materialize. In future, all applicants will be required by county committees to deposit a sum not exceeding £2 with their applications, and selected applicants failing to procure premium bulls will forfeit the amount deposited.

The following table gives particulars of bulls selected for and awarded premiums under the scheme in 1927.

County	Pure-bred registered dairy shorthorn		Registered dairy non-pedigree shorthorn	Short-horn	Aberdeen Angus	Galloway	Total
	Dam and sire registered	Dam only registered					
Antrim	10	17	2	45	2	16	92
Armagh	1	3	3	34	—	—	41
Down	12	13	2	41	19	—	87
Fermanagh	4	2	2	11	16	—	35
Londonderry	5	5	2	15	5	—	32
Tyrone	10	6	3	32	14	—	65
Totals	42	46	14	178	56	16	352

The following table shows, by counties, the distribution of premium bulls in the period under review :—

County	Number of bulls retained for service from 1926	Number of bulls provisionally awarded premiums for the first time in 1927	Total number of bulls approved for premiums in 1927
Antrim	65	27	92
Armagh	26	15	41
Down	49	38	87
Fermanagh	24	11	35
Londonderry	22	10	32
Tyrone	51	14	65
Totals	237	115	352

With regard to the distribution of bulls in the poorer districts of counties Fermanagh and Tyrone, special provision was again made to assist breeders in these districts to secure suitable sires on easy terms. The system adopted enables the two committees named to purchase approved bulls and to supply the animals to selected applicants at one-third of the cost price, the amount to be paid to the committee in three instalments. During the period covered by this report each county supplied two bulls under this arrangement, making a total of thirteen bulls located in 1926 and 1927 in the

poorer districts in these two counties under this special scheme. Nine bulls were so located last year, and these animals were passed as suitable to stand for a second service season.

(h) *Registration of Dairy Cattle.*

Success or failure in dairying depends upon the milking capacity of the herd. To obtain the greatest profit it is necessary in the first place to ascertain not only the quantity but also the quality of the milk yielded by each individual cow, and then to weed out all cows whose yields of milk and butter-fat fall below a standard which will secure a fair profit, after allowing for the cost of production. All progressive dairy farmers now realize that the systematic keeping of milk records is the only certain method of determining accurately the milking qualities of the herd. The principal object of this scheme, therefore, is to encourage the keeping of authenticated milk records and the breeding from cows which have good records with a view to effecting improvement in the conformation and milking qualities of the cattle in Northern Ireland.

The basis of this scheme is the keeping by the Ministry of "Registers of Pure-bred Dairy Cattle," in which pure-bred cows of any dairy breed and their progeny may be entered subject to certain conditions. Provision is also made for the acceptance of particulars of cows of conspicuous milking qualities in "Advanced Registers" of the various dairy breeds. The procedure adopted is that breeders of pure-bred cattle are circularized twice a year with a view to their submitting particulars of any in-calf heifers or cows which they desire to record for ultimate registration. Such animals are then inspected by the Ministry's live stock officers, and if of good conformation and well-defined type are passed as suitable for provisional selection for registration. It is then incumbent upon the owner to weigh the milk yielded by each cow on every seventh day during the milking period, and to record the yield on the milk record form supplied by the Ministry. Milk samplers employed by the Ministry visit the several herds periodically during the milking period of each provisionally selected cow, in order to weigh and sample the milk (morning and evening) and to check the milk records kept by the owner. These samples are forwarded to the Ministry's Chemical Research Station, Queen's University, Belfast, for testing for butter-fat. In this connexion it should be noted that the first 45 weeks only after calving will be regarded as the cow's "milking period" for the purposes of the scheme. Further, the owner must notify the Ministry, within seven days, of the birth of a calf out of a provisionally selected cow, so that, in the event of the cow being subsequently registered, particulars of the calf may be entered in the appropriate register as progeny, provided that the sire used was a pure-bred bull passed by the Ministry as suitable for service under the scheme.

Cow owners presenting animals for inspection are charged an inspection fee of 5/- per cow, but fees are refunded in respect of all cows which are not provisionally selected. Hitherto the fee of 5/- was chargeable in all cases, but a slight modification was made in the scheme this year in the case of pure-bred cows owned by members of milk recording associations. Previously it was not necessary for members of milk recording associations, who were testing both pure-bred and cross-bred cows for registration, to enter the pure-bred cows in the association, and such animals were entered only under the scheme for the registration of pure-bred dairy cattle. This year, however, it was decided that pure-bred cows entered under this scheme, and owned by members of milk recording associations, must also be entered and tested in the association. Under this arrangement a greater number of butter-fat samples per cow will be available for calculating the total butter-fat yield. As the owners of pure-bred cows coming under this category are required to pay the usual fee for each cow tested in the association, it was decided that members of milk recording associations who are testing pure-bred cows for entry in the Ministry's register of pure-bred dairy cattle will be charged an inspection fee of one shilling only. The Ministry's policy regarding the acceptance of records of pure-bred cows tested in milk recording associations for the purpose of registration, remains unchanged—that is, the records are accepted only if the animals have been duly entered and provisionally selected under the provisions of the scheme for the registration of pure-bred dairy cattle.

The minimum qualifying standards for registration—ordinary and advanced—are set out in the following table :—

TABLE I.

Breed	Ordinary Register			Advanced Register		
	Milk yield lb.	Butter-fat lb.	Percentage of butter-fat	Milk yield lb.	Butter-fat lb.	Percentage of butter-fat
Shorthorn Ayrshire Red Poll	6,000	210	3	8,000	280	3
British Friesian	8,000	280	3	10,000	350	3
Kerry or Jersey	5,000	175	3	7,000	245	3

If a cow gives the prescribed quantity and quality of milk for registration, and produces a calf (after a normal period of gestation) within fourteen months (426 days) of the date of calving immediately preceding the milking period for which the milk record has been kept, particulars of the animal are entered in the appropriate register. The object of this regulation is to prevent cows being registered on abnormal milk yields.

Provision is also made in the scheme for registration of cows which fail to produce a calf within the fourteen months, but calve within sixteen months (487 days) from the previous date of calving. Cows coming within this category are required to give a higher milk yield amounting to an increase of 25 per cent. on the Advanced Register standard. The following table illustrates the minimum registration yield required in the case of each breed and the deductions which are made when entering particulars in the register :—

TABLE II.

Breed	Minimum yield to qualify for registration		Deductions to be made from actual yields for entry in Register.	
	Milk lb.	Butter-fat lb.	Milk lb.	Butter-fat lb.
Shorthorn	10,000	350	2,000	70
British Friesian	12,500	437.5	2,500	87.5
Kerry } Jersey } Any other Breed }	8,750	306.25	1,750	61.25
		Same as for Shorthorn		

The number of cows inspected during the period under review and provisionally selected for registration was 183, as follows :—118 pure-bred Shorthorns, 3 non-pedigree Shorthorns, 5 Jerseys, 15 British Friesians, 4 Ayrshires, 38 Kerries.

It is of interest to note that from the date on which the Ministry commenced to function until 30th September, 1927, a total of 4,835 cows including 377 pure-bred Shorthorns, 42 British Friesians, 12 Ayrshires, 29 Kerries, 29 Jerseys, 3 Red Polls and 4,343 non-pedigree Shorthorns, had complied with the standards prescribed for general appearance, quantity and quality of milk yield, and were duly registered. Of this total the number that attained registration standard during the year under review was 76 pure-bred Shorthorns, 13 British Friesians, 2 Ayrshires, 3 Kerries, 4 Jerseys and 1,501 non-pedigree Shorthorns.

Table showing yields of all cows (pure-bred and non-pedigree) registered by the Ministry during the period 1st October, 1926—30th September, 1927 :—

Breed	Number of cows registered on a yield of				Total No. of cows registered
	Gallons 500-600	Gallons 600-800	Gallons 800-1000	Gallons over 1000	
Pure-bred Shorthorn	—	50	23	3	76
British Friesian	—	—	6	7	13
Ayrshire	—	2	—	—	2
Kerry	—	3	—	—	3
Jersey	—	2	2	—	4
Non-pedigree Shorthorn	—	875	475	151	1,501
Totals	—	932	506	161	1,599

Table showing yields of all cows (pure-bred and non-pedigree) registered by the Ministry during the period 1st January, 1922—30th September, 1927 :—

Breed	No. of cows registered on a yield of :—				Total No. of cows registered
	Gallons 500-600	Gallons 600-800	Gallons 800-1000	Gallons over 1000	
Pure-bred Shorthorn	—	272	87	18	377
British Friesian	—	6	20	16	42
Ayrshire	—	9	3	—	12
Kerry	19	9	1	—	29
Jersey	7	10	12	—	29
Red Poll	—	1	2	—	3
Non-pedigree Shorthorn	—	2,831	1,166	346	4,343
Totals	26	3,138	1,291	380	4,835

The operations of this scheme have naturally had a direct bearing on the work of the cattle breeding scheme referred to in previous pages, as the male progeny of registered cows are eligible to compete for the premiums allotted under the cattle breeding scheme. This provides a further inducement to farmers to test their cows, as pedigree bull calves that are passed for premiums at the shows command a higher price than is obtained for calves from unregistered cows. This advantage also extends to the female progeny, as owners are able to obtain better prices for such calves at local sales if they are in a position to show the prospective purchaser the milk record of the dam.

During the period under review 142 bulls, the progeny of registered Shorthorn cows, were inspected and 88 were provisionally selected for premiums under the cattle breeding scheme. Of this number 48 were pure-bred animals with dams and sires registered; 24 were pure-bred with dams only registered, and 16 were non-pedigree animals with approved milk records on one or both sides. In addition 50 bulls, the progeny of pure-bred Shorthorn cows, were inspected at owners' residences and passed as suitable for the service of provisionally selected and registered Shorthorn cows.

Over 2,500 samples of the milk of pure-bred cows provisionally selected for registration were tested for butter-fat at the Ministry's laboratory.

(i) *Milk Recording Associations.*

It is only by means of keeping accurate milk records that farmers can distinguish between the profitable and unprofitable cows in the herd, and it is obvious that a cow which merely pays for itself is not a good investment.

Quite apart from its value to the farmer, milk recording is also beneficial to such concerns as creameries which are dependent on the farm for a clean and plentiful supply of milk of good quality.

The scheme for 1927 was in practically all respects identical with that in operation in the previous year.

In addition to the usual yearly grants made by the Ministry to each association, viz., 4s in respect of each cow under test, £35 towards the supervisor's salary and £10 for prizes for registered cows, grants (£10 to each association) are made by county committees of agriculture towards the cost of purchasing equipment, etc. The allocations made by county committees for this purpose in 1927 were as follows :—

	£
Antrim	150
Armagh	60
Down	120
Fermanagh	90
Londonderry	80
Tyrone	130

Eleven new associations were established during the year—one in county Armagh; three in county Down; four in county Fermanagh; one in county Londonderry, and two in county Tyrone—but four lapsed at the end of 1926, viz., Kilkeel (county Down), Moneymore (county Londonderry), Derrygonnelly (county Fermanagh) and Leckpatrick (county Tyrone), thus making a net increase of seven and bringing the total number of milk recording associations in Northern Ireland to 60.

The appended tables show the growth of the milk recording movement since the establishment of the Ministry.

County	Number of Milk Recording Associations							Number of Members							Number of Cows under Test						
	1921	1922	1923	1924	1925	1926	1927	1921	1922	1923	1924	1925	1926	1927	1921	1922	1923	1924	1925	1926	1927
	1	4	4	11	13	14	14	43	156	168	394	488	447	540	245	1052	1074	2458	2733	3100	3168
Antrim	1	4	4	11	13	14	14	43	156	168	394	488	447	540	245	1052	1074	2458	2733	3100	3168
Armagh	1	4	4	4	4	5	6	14	47	133	167	173	189	274	112	192	506	747	680	859	1016
Down	...	...	3	2	5	10	12	...	...	115	68	186	425	502	...	...	544	440	971	1833	2266
Fermanagh	...	1	4	3	6	6	9	15	117	94	169	198	211	345	133	931	698	1119	1044	1034	1668
Londonderry	...	...	1	4	4	7	7	...	...	58	168	132	305	302	...	...	306	922	824	1793	1750
Tyrone	3	4	5	7	10	11	12	127	121	176	198	346	391	445	754	934	1210	1417	1861	2264	2297
Totals	6	13	17	34	42	53	60	199	441	744	1164	1523	1968	2408	1244	3109	4338	7103	8113	10883	12165

In addition to those grants already mentioned which the Ministry made to the funds of milk recording associations, assistance was provided to enable associations to procure pure-bred dairy bulls of deep milking strain and, for this purpose, a subsidy equivalent to two-thirds of the cost price of the bull was granted, the maximum

subsidy being limited to £73½. During the year under review eighteen associations took advantage of this arrangement, the prices paid for the animals varying from £46 to £157 10s 0d,—the average price being about £101. The total amount involved in the purchase of these animals was £1,824 18s 0d, and of this £1,142 2s 0d was defrayed by the Ministry. This arrangement has now been discontinued, and in future milk recording associations requiring bulls must apply for premiums to their respective county committees of agriculture who have been provided with special grants from the Agricultural Development Fund to meet the cost of these premiums.

In February, 1927, a course of instruction for supervisors was held in Belfast, and was attended by nineteen newly appointed supervisors. During the year two conferences were held, viz., at Omagh and Enniskillen, to which supervisors of local milk recording associations were invited. At these conferences addresses relating to various aspects of dairying were given by the Ministry's Inspectors and matters concerning milk recording generally and the feeding of dairy cows were under discussion.

With the growth of the milk recording movement there is developing a practical realization of the close connexion which exists between feeding and milk yield. Milk recording is only a means to an end, and not an end in itself. Its immediate effect is to provide the farmer with reliable data for weeding out the constitutionally poor milking cow. But the breeding of heavy milk cows can only be accomplished if due attention is paid to proper feeding. A thousand gallon cow for example will never perform as such if she is fed merely as a 500 gallon cow would be fed. It will be realized, therefore, that after weeding-out further progress depends upon scientific breeding and feeding—milk recording being the only method of providing the farmer with the essential data and also the means of measuring the progress which he is making.

In this connexion the milk recording movement is performing a vitally important educational function. It is from members of milk recording associations that by far the largest proportion of the inquiries for advice and assistance in the rationing of cattle are received by the Ministry, and there is abundant evidence to show that the advisory services on cow rationing which have resulted from milk recording have very materially helped to increase the yield of milk from our dairy cows.

An interesting and instructive public lecture on the feeding and management of dairy cows was given by Mr. R. Boutflour, M.Sc., Director of Dairy Husbandry, Harper Adams Agricultural College, Shropshire, in the Ulster Minor Hall, Belfast, on 30th September. The audience included a number of supervisors of milk recording associations.

During the year the Ministry carried out two inspections of cows which had qualified in respect of milk and butter-fat yields for entry in the Ministry's Registers of Dairy cattle, and as a result of these inspections 1,380 cows were accepted for entry in the Registers—in addition, a total of 121 cows qualified for registration prior to 1st October, 1926, but were not inspected in time for inclusion in last year's report.

It is hoped to issue at an early date a register containing particulars of all non-pedigree dairy cattle entered in the Ministry's Registers of Dairy cattle up to the 31st December, 1925, including animals the property of residents in Northern Ireland which were registered by the Department of Agriculture and Technical Instruction prior to the 1st January, 1922.

(j) *Swine-breeding.*

The main object of this scheme is to promote the improvement of swine breeding in Northern Ireland by inducing boar owners to keep suitable and sound sires of a high degree of excellence, and by encouraging farmers to retain their best young sows for breeding. The scheme follows generally on the lines of the cattle breeding scheme, and its principal feature is the provision of premiums for boars of the Large White Ulster and Large White York breeds, the animals being located with applicants selected by the several county committees. The maximum value of a premium is £10 for the first year and £7 for the second year. For the maximum premium each first year premium boar must serve not less than thirty sows, and each second year boar not less than forty sows, and the service fee varies from 2/6 to 5/—, as fixed by the county committee. First year boars are inspected annually by the Ministry with a view to determining their suitability for a second year premium, and, in the great majority of cases, they are passed as suitable for a further premium.

The following tables summarize the operations of the scheme in 1927 :—

I.

County	1st year boars		2nd year boars		Breeds		Total No of boars awarded premiums
	Value of premiums	No. of boars	Value of premium	No. of boars	Large White Ulster	Large White York	
	£		£				
Antrim	10	22	8	10	32	—	32
Armagh	10	14	8	5	18	1	19
Down	10	18	8	10	25	3	28
Fermanagh	10	10	8	8	16	2	18
Londonderry	10	10	8	6	15	1	16
Tyrone	8	28	6	6	32	2	34
Totals	—	102	—	45	138	9	147

The expenditure on the scheme in each county was as follows :—

II.

County	Money allocated by county committee for boar premiums	Estimated expenditure by county committee for boar premiums	Total No. of premium boars standing during service season
	£	£	
Antrim	250	*280	32
Armagh	110	*170	19
Down	150	*210	28
Fermanagh	150	148	18
Londonderry	150	136	16
Tyrone	250	*262	34
Totals	1,060	1,206	147

*The excess expenditure over the ordinary allocation will be met from savings effected on the other live stock schemes.

(k) *Sheep-breeding.*

(a) *In mountainous districts.*

In Northern Ireland there is a sheep population of approximately 530,000, about two-thirds of which are mountain or blackface sheep, usually grazed in flocks on a common run or mountain; a flock may be owned by as many as half-a-dozen farmers. Sheep-breeding is one of the few branches of agriculture which have proved profitable during the present period of depression, and the successful working of the Ministry's sheep-breeding schemes has enabled sheep breeders to benefit substantially. Considerable development has taken place in recent years in the mountain sheep scheme as will be seen from the following table, which shows the total number of premium blackface rams placed out since the inception of the Ministry :—

Year.	Number of Rams.
1921-22	22
1922-23	15
1923-24	38
1924-25	84
1925-26	106
1926-27	134

It may be added that, owing to the extra funds which have been made available for live stock development, it is anticipated that close on 200 rams will be placed out next season.

The chief aim of the scheme is to supply high-class rams on easy terms to breeders in mountainous districts. The system adopted enables county committees to purchase a number of blackface rams and sell the animals at reduced prices to selected applicants. During the season under review the committees charged their applicants the

same flat rate, namely, £3 10s per ram on all animals costing up to £10. In the case of rams costing more than this figure the selected applicant was required to defray the balance. Each breeder is required to keep the ram in healthy breeding condition for two seasons, and at the end of that time the animal is generally disposed of to an owner in another district—in this way the rams remain in use for three and sometimes four years.

The scheme was in operation in every county except county Fermanagh, as will be noted from the table beneath.

County	Allocation from joint fund	Number of rams supplied	Average cost of rams	Minimum price paid by applicant	Net expenditure (cost of rams less receipts from sales)	Excess over ordinary allocation borne from special development grant
	£		£ s d	£ s d	£ s d	£ s d
Antrim	100	44	7 0 8	3 10 0	267 11 0	167 11 0
Armagh	40	1	10 0 0	3 10 0	6 10 0	—
Down	80	34	7 18 3	3 10 0	146 10 5	66 10 5
Londonderry	60	18	10 8 7	3 10 0	96 5 10	36 5 10
Tyrone	60	37	9 15 0	3 10 0	217 9 1	157 9 1
Totals	340	134	—	—	734 6 4	427 16 4

The Ministry co-operates closely with the Ulster Ram Breeders' Association, and, in addition to giving an annual grant—this year a grant of £50 was provided—it recognizes the sales held annually in Belfast in the autumn under the Association's auspices as centres for the selection of premium rams.

In addition to the rams selected at these sales, however, it has been found necessary to import a number of high-class rams from Scotland. The practice of purchasing rams for use under this scheme from private breeders was discontinued this season, and all selected rams are now procured at either the Belfast or Scottish sales.

It is of interest to note that, as a result of representations made by the Ministry, the Irish Railway Clearing House agreed to include premium rams in the arrangement which has been in operation over a number of years whereby premium animals purchased at approved Spring shows and sales are conveyed to the purchasers' destination by rail at half-rate, which is paid by the Ministry. Hitherto, this concession affected only premium bulls, boars and stallions, but this year all premium rams purchased at the autumn sales were carried to their destination (if consigned by rail) free of charge to the owner.

Owing to the success of the exhibitions of blackface sheep, which took place at Cushendall and Carnlough in August, 1926, similar events were again held at these centres in 1927, with most success-

ful results. The majority of the sheep exhibited were the progeny of rams placed out under the scheme in the mountainous districts of county Antrim, and the general high standard of the animals on view demonstrated clearly the improvement that has been effected in mountain sheep in this area by the operations of the scheme during the last few years. In order to stimulate local interest the Ministry again presented to the prize-winners cash awards amounting to £22 10s, and arranged for a Scottish breeder to act as judge. The county Down committee of agriculture also promoted two sheep exhibitions on similar lines at Kilkeel and Hilltown.

(b) *In lowland districts.*

Lowland sheep are usually run in small flocks, and each farmer keeps his flock on his own farm. With the object of improving sheep-breeding in lowland districts the scheme providing premiums for pure-bred rams of lowland breeds was continued during the season, three counties participating. The following table gives particulars of the operations of the scheme during the season under review :—

County	Allocation from joint fund	No. of premium rams		
		Border Leicester	Suffolk	Total
Antrim	£ 32	4	—	4
Down	80	8	—	8
Londonderry	88	7	2	9
Totals	200	19	2	21

Generally speaking the scheme operates on similar lines to the other premium schemes promoted to encourage live stock breeding. The rams are selected at one or other of the autumn sales held in Belfast under the auspices of the Ulster Ram Breeders' Association and premiums are granted only to such shearling rams of the approved breeds as are entered or eligible for entry in the flock book of the breed. It will be observed from the above table that the great majority of the rams placed out are of the Border Leicester breed.

The maximum value of the premium is £8, and to earn the full premium each ram must serve not less than thirty, and not more than forty, ewes during the season, the maximum service fee chargeable being 2/- per ewe. A ram may be awarded a second and also a third year premium, provided that it is approved each season by the Ministry and that its owner is selected each year by the committee, but a third year premium is granted only to rams of outstanding merit which have been changed to a new locality.

(l) *Goat-breeding.*

There is undoubtedly great scope for improvement in the type of goat to be found generally in Northern Ireland. The realization of this fact by prominent goat-breeders led to the formation of the Ulster Goat Society in 1922, which has so far achieved an encouraging measure of success. During the period covered by this report a grant of £50 was made by the Ministry to the funds of the Society.

The Society has in operation a stud goat scheme under which male goats with good milking pedigrees are distributed and premiums of £2 are granted to the owners of these animals provided they fulfil certain regulations laid down by the Society. The Ministry is fully alive to the beneficial work that is being accomplished, and co-operates with the Society to encourage the milk recording of goats by keeping a register in which are entered particulars of those goats which give a calculated yield of not less than 900 lb. of milk in a lactation period not exceeding forty-five weeks. In this connexion it may be noted that the Ministry furnishes the British Goat Society with particulars of all animals which, as the result of a test, have been accepted for entry in the Ministry's Register of Goats on a milk yield of 1,000 lb. or over, and particulars of such animals appear in the milk recorded section of the British Goat Society's herd book.

(m) *Creameries.*

The Ministry's inspectors visited during the year 37 central creameries and 84 separating stations—the number of visits made being 114 and 90 respectively. Instruction and advice were afforded to the creamery staff by the inspectors, and it is gratifying to record that a distinct improvement has taken place in the quality of the produce.

The experiments inaugurated at Omagh Creamery in 1924, with the object of overcoming the difficulties experienced in producing butter of a uniform quality from cream supplied by a number of auxiliaries, were continued with satisfactory results. The experiments will be carried on at this creamery for another year, and will include an investigation into the methods of preparing for market cream without the addition of preservatives.

Surprise Butter Inspections.—Surprise butter inspections were held monthly throughout the year at several important distributing centres in Great Britain as well as at convenient centres in Northern Ireland. In order to ensure the element of surprise, the samples were called for by telegram and forwarded by the creameries on the day on which the telegrams were issued. Every precaution was taken to ensure that the "surprise" sample fairly represented the butter ordinarily produced at the particular creameries. The samples were kept for eight or ten days and were then judged in respect of flavour, texture, and marketable appearance, the judges

(two independent butter merchants) grading them into three classes, viz. :—"Premium," "Standard" and "Below Standard." The scale of points adopted for the purposes of the adjudication were the same as those detailed in the Ministry's fifth annual report.

Of the twelve inspections made during the year, three were held in Belfast and one each in Glasgow, Birmingham, Newcastle-on-Tyne, Manchester, Cardiff, Coleraine, Enniskillen, Omagh and Ballymena. Following the practice adopted in previous years, the cross-Channel inspections took place during the export season (May-October), and on the day following the inspection at each centre the butter was exhibited for examination by leading wholesale merchants who were circularized by the Ministry and invited to attend. From the interest taken in these exhibitions and the resulting enquiries made by merchants the Ministry is satisfied that the reputation of Northern Ireland creamery butter has been enhanced in cross-Channel markets.

During the year a total of three hundred and eighty-seven samples were judged at surprise butter inspections, and of this number three hundred and twenty, or over 82 per cent., were awarded either "Premium" or "Standard" marks.

Marking of Butter Packages.—The scheme inaugurated by the Ministry in 1924, to enable creameries which have consistently sent samples of high quality to the surprise butter inspections to stamp their boxes with a Government stamp, was continued during the period covered by this report. In order to qualify for the award of the stamp a creamery must have obtained at least "Standard" marks at inspections six times in immediate succession. Creameries qualified to use the stamp must regularly submit samples to inspections, but on failing to gain the requisite marks the stamp is withdrawn. The use of the stamp by a creamery is again permitted if at three successive surprise inspections at least "Standard" marks are awarded to the sample of butter submitted by the creamery. The fact that, of a total of 37 creameries participating in surprise butter inspections, 24 have, since the inception of the scheme, qualified for the award of the stamp, is evidence that a material improvement has taken place generally in the standard of quality of butter produced by Northern Ireland creameries.

Adulteration of Butter.—With the object of collecting reliable data as to the percentage of butyric acid present in pure butter, the Ministry commenced in the spring a series of tests, to extend over a year, to determine the average proportion of acid present in normal samples of butter made in such circumstances as to preclude the possibility of adulteration. Samples of butter are obtained monthly from selected farms and creameries in Northern Ireland, and are analysed by the Reichert-Wollny method.

Courses of Instruction in Creamery Management.—The popularity of courses of instruction in creamery management was further evidenced by the attendance of a total of thirty managers at the course conducted by the Ministry at Omagh in March, 1927.

The object of the course was to demonstrate methods of obtaining a clean milk supply for creameries, testing milk for dirt, adoption of a standard for clean milk, etc. In addition, demonstrations were given on the standard method of manufacture and treatment of cream from auxiliaries.

A further course for the benefit of head butter-makers and principal assistant butter-makers employed in Northern Ireland creameries was held at Leckpatrick creamery, Artigarvan, Strabane, and was attended by twenty-two butter-makers. A valuable series of lectures and demonstrations which was greatly appreciated by those who took advantage of the course, was given by the Ministry's inspectors.

Training of Dairymaids.—Opportunities for practical training in creamery work are provided at approved creameries for girls who show special ability during their course of training at the Ulster Dairy School, and who wish to obtain extended practical experience. Training usually takes place during the summer months when creameries are churning every day, and the course covers a period of twenty weeks. During the period of training the Ministry makes a contribution towards the cost of the pupils' board and lodging. Provided that their progress and conduct have been satisfactory, the girls are awarded at the end of the course the Ministry's certificate of competency in creamery butter-making, and efforts are made to place them in positions as dairymaids.

Three girls were placed out at selected creameries during 1927, and two of them subsequently qualified for the award of the Ministry's certificate—the remaining girl has not yet completed her training.

Bacteriological Service for Creameries.—Pending the provision of a bacteriological service for creameries, &c., by the Ministry's Dairying Research Division, which it is hoped will be available early in 1928, the services of Professor W. J. Wilson, Professor of Bacteriology at Queen's University, Belfast, were utilized by the Ministry during the year for the purpose of carrying out the bacteriological examination of samples of milk, butter, cream and cheese used or produced by creameries in Northern Ireland. Samples were submitted for examination only where the Ministry's inspectors were satisfied that such examination was necessary in order to discover the cause of some defect in butter, etc., produced by the creamery concerned.

9. AGRICULTURAL LAWS, INCLUDING DISEASES OF ANIMALS ACTS.

Live Stock Breeding Act (Northern Ireland), 1922.

The improvement in the cattle of Northern Ireland which was recorded in the fifth annual report as having resulted from this Act is even more noticeable now, and while every care has been taken to ensure that no district has been left with an insufficiency of bulls for breeding purposes it has been found possible to maintain a higher standard than heretofore for licensed animals throughout practically the whole of the province. Farmers and breeders continue to co-operate with the Ministry and, recognizing that "the bull is half the herd" are now fully alive to the advantages of retaining for service such bulls only as are likely to produce progeny of high quality. It may be mentioned in this connexion that general support has been accorded to the Ministry in its decision to eliminate, as far as possible, certain specified types of non-pedigree bulls which experience had shown to be unsuitable for the production of good dual purpose cattle.

As in previous years two tours of inspection were carried out at a large number of centres throughout the six counties—the first in February and March, the second in August and September—and by means of press notices, posters and circulars, owners of young bulls were advised as to the procedure to be observed in order to have their bulls inspected. At the Spring Sales held by the Royal Ulster Agricultural Society at Balmoral, Belfast, and by the North West of Ireland Agricultural Society at Londonderry, all bulls exhibited which reached the prescribed age on 31st March, 1927, were inspected for licences. Breeders of young pure-bred bulls and of non-pedigree registered dairy bulls for which classes were provided at the sales were thus privileged, if they so chose, to have their animals inspected for licence at these fixtures instead of at the ordinary local centres. Similarly, at a few representative local sales all the bulls exhibited were inspected for licences. Purchasers of young bulls of the required standard were given licences at the sales, and where older licensed bulls were purchased the licences were transferred to the new owners.

In Table A below are given particulars of the results of inspections held in Spring 1927 of bulls which were of the prescribed age on 31st March, 1927. Table B relates to similar inspections held in Autumn 1927 of those bulls which reached the prescribed age on 30th September, 1927.

TABLE A.

County	Number of applications for licences	Number of licences granted	Number of licences refused	Number of applications withdrawn
Antrim	817	619	170	28
Armagh	338	252	68	18
Down	527	430	81	16
Fermanagh	236	167	56	13
Londonderry	440	331	81	28
Tyrone	694	519	145	30
Totals	3,052	2,318	601	133

Included in above are 207 bulls which were specially inspected at owners' residences subsequent to the ordinary inspections. (195 licensed and 12 rejected).

TABLE B.

County	Number of applications for licences	Number of licences granted	Number of licences refused	Number of applications withdrawn	To be inspected
Antrim	328	261	47	19	1
Armagh	147	116	17	14	—
Down	186	155	20	11	—
Fermanagh	127	89	32	6	—
Londonderry	115	90	18	6	1
Tyrone	273	200	53	19	1
Totals	1,176	911	187	75	3

Included in above are 38 bulls which were specially inspected at owners' residences subsequent to the ordinary inspections (35 licensed and 3 rejected).

Special inspections were carried out at owners' residences in the case of 405 bulls, viz., 245 young bulls and 160 older bulls. Of these 382 were licensed and 23 rejected. The percentages of cases in which licences were refused at the several ordinary inspections since the Act came into operation are as follows :—

September, 1923	...	5.7	per cent.
February, 1924	...	15.4	„
September, 1924	...	22.5	„
February, 1925	...	23.0	„
September, 1925	...	23.0	„
February, 1926	...	36.3	„
September, 1926	...	20.6	„
February, 1927	...	21.7	„
September, 1927	...	17.3	„

In 22 cases appeals were lodged against the Ministry's decision to refuse to grant licences under the Act, and in 8 of these cases the appeals were upheld. Two appeals were withdrawn.

It is satisfactory to record that in only four instances during the year was it found necessary to take legal proceedings against persons who persisted in keeping unlicensed bulls. In each of these instances a conviction was obtained.

Permits were granted in 85 cases to owners of unlicensed bulls to enable them to retain the animals for a limited period for fattening purposes. In 70 cases the bulls were slaughtered before the expiry of the permits. In the remaining 15 cases the permits will not expire until 31st December, 1927.

The Ministry desires to testify once again to the valuable assistance rendered by the Royal Ulster Constabulary in the enforcement of the provisions of the Act.

Horse Breeding Act (Northern Ireland), 1926.

This Act, which supersedes the Horse Breeding Act, 1918, was passed by the Parliament of Northern Ireland in November, 1926, and came into force on the 1st January, 1927. The statutory rules which it was necessary to make under the Act were made early in December, 1926. Briefly, the Act provides that it shall be unlawful for any person to keep or have under his control a stallion of three years old and upwards, unless the stallion has been licensed by the Ministry or, in the case of a stallion not intended to be used for service purposes, a permit has been granted to the owner to enable him to keep the animal for any of the following purposes :—

- (a) for racing ;
- (b) as polo pony ;
- (c) as draught, harness or riding horse ;

The usual annual inspections of stallions under the Horse Breeding Act, 1918, took place in October, 1926. Early in December notices were inserted in the press regarding the requirements of the new 1926 Act, and persons who were known to be in possession of unlicensed stallions were also informed. As a result, 24 additional applications were received for licences and 17 for permits.

Altogether during the year the number of applications for licences received was 153, and of these 132 were granted. The total number of permits applied for was 45, the majority being for the purpose of enabling owners to use the stallions, which were practically all aged animals, for draught or harness purposes. In the case of the only permit which was refused the animal concerned has since been castrated.

When the new Act came into force there were in Northern Ireland 83 known unlicensed stallions, the majority of which, it may be assumed, were unsuitable for stud purposes. The position in regard to these animals is now as follows :—

14 stallions have been licensed (including three for the service only of mares the property of the stallion owners).

38 permits have been granted on condition that the horses are not used for stud purposes.

26 stallions have been castrated.

78

Five cases remain to be dealt with.

The additional powers provided in the new Act have rendered it possible to bring all stallions under review and, as the figures show, the new legislation has already resulted in the disappearance for stud purposes of a substantial number of inferior sires.

In three cases appeals, all of which were unsuccessful, were lodged against the Ministry's decision to refuse to grant licences.

Despite repeated warnings it was found that, in a few cases, owners of unlicensed stallions were still retaining the animals contrary to the provisions of the Act, and in two of these instances the Ministry felt obliged to institute proceedings. Convictions were obtained in both cases.

In the following table a summary is given of the results of the inspections of stallions for licences in the past three seasons :—

County	Number of applications for licences for seasons			Number of licences granted			Number of licence refused		
	1925	1926	1927	1925	1926	1927	1925	1926	1927
Antrim	33	41	42	29	35	37	4	6	5
Armagh	8	12	14	7	10	11	1	2	3
Down	37	37	38	35	35	34	2	2	4
Fermanagh	10	14	18	9	11	13	1	3	5
Londonderry	31	31	27	27	28	24	4	3	3
Tyrone	18	17	14	15	13	13	3	4	1
Totals	137	152	153	122	132	132	15	20	21

For the 1927 season 14 stallions were rejected for faulty conformation, one for unsoundness, and in the remaining six cases both these defects were present.

The following table shows the number of stallions of each breed licensed in each county for the 1927 season :—

County	Thoroughbred	Clydesdale	Half-bred	Shire	Suffolk Punch	Irish draught	Hackney	Pony	Percheron	Total
Antrim	3	10	7	—	—	—	5	10	1	37
Armagh	1	4	4	—	1	—	—	2	—	11
Down	15	9	4	1	—	1	2	2	—	34
Fermanagh	1	2	5	—	—	—	—	5	—	13
Londonderry	2	16	2	—	1	—	2	1	—	24
Tyrene	3	4	3*	—	—	1	1	1	—	13
Totals	25	45	25*	1	2	2	10	21	1	132

*One since dead

Diseases of Animals Acts.

Transit of Animals (Northern Ireland) Order of 1927.

As the result of conferences between the Ministry of Agriculture and Fisheries, London, the Department of Lands and Agriculture, Dublin, and the Ministry, new Transit of Animals Orders, substantially identical, were issued by the three Departments in 1927.

The chief features of the Orders are as follows :

- (a) The prohibition of the carriage of animals on those parts of vessels where there is risk of unnecessary suffering and undue exposure ;
- (b) The prohibition of the carriage in tiers of crates containing animals ;
- (c) The specification of the dimensions of pens and fittings for vessels fitted for transit of animals after making of the Order ;
- (d) The provision of proper ventilation for each enclosed compartment by changing the air every 3 minutes ;
- (e) The provision of electric light on all animal-carrying vessels ;
- (f) The tying by the head, and the carriage in separate pens, of certain classes of animals ;
- (g) The provision of a sufficient number of experienced cattle men on board ;
- (h) The prohibition of the beating of animals with sticks during embarkation or debarkation and provision for the use of a goad of a pattern approved by the Ministry ;
- (i) The provision of a certain number of empty pens for the reception, if necessary, of injured animals ;
- (j) The prohibition of the carrying of animals if injury, suffering or loss of life is possible owing to adverse weather conditions ;

- (k) The provision of tarpaulin covers for the sides of railway trucks used for the carriage of shorn sheep from November to April.
- (l) The cleansing and disinfection of motor vehicles used for the carriage of animals by road.

Generally speaking the new Order is working satisfactorily.

The Animals Disinfection (Northern Ireland) Order, 1927.

The Animals Disinfection Order of 1926 laid down that when any article or thing was required to be disinfected such article or thing should be first disinfected then cleansed and then finally disinfected. On consideration it was decided that, although more effective, this threefold process is at present unnecessary. The new Order therefore provides that the process shall be a twofold one, viz., first cleanse and then disinfect. The new Order also requires the disinfection of motor vehicles used in certain circumstances.

The Boiling of Imported Animal Food (Northern Ireland) Order of 1927.

This Order has been made as an additional precaution against the introduction of foot-and-mouth disease. It requires that all imported animal food shall be boiled for at least one hour before being fed to or brought into contact with animals.

The Conveyance of Live Poultry (Ireland) Order of 1919 Amendment (Northern Ireland) Order of 1927.

The question of amending in a comprehensive manner the Conveyance of Live Poultry Order of 1919 still remains a subject of discussion with the Imperial and the Free State Departments. As an interim measure, however, the Ministry felt obliged to make the above Order, which provides that young geese hatched in the calendar year during which they are being consigned shall be conveyed in a receptacle measuring not less than 12in. high internally.

**The Sheep Dipping (Northern Ireland) Order of 1927.*

This new Order substitutes a period of one minute as the period of immersion for sheep dipped under any Order or regulation in force in Northern Ireland, for the old period of half a minute as required prior to the making of this Order.

The provisions of any Order requiring a shorter immersion are revoked by this Order.

Outbreaks of Animal Diseases.

The following table shows the outbreaks of scheduled diseases during the period covered by this report :—

Anthrax.	Bovine Tuberculosis		Parasitic Mange	Sheep Scab	Swine Fever
Outbreaks.	Outbreaks	Animals declared affected	Outbreaks	Outbreaks	Outbreaks
1	685	705	2	67	Nil.

A very satisfactory feature of the above table is that there were no outbreaks of swine fever during the year.

Importation of Breeding Animals from Scotland.

Sheep.—6,858 breeding sheep (mainly Blackfaced) were imported from certain approved Scottish Sheep sales during the autumn of 1927.

Cattle.—Seventy-three pedigree cattle (45 Aberdeen Angus, 15 Shorthorn, and 13 Galloway) were similarly imported from approved Scottish Cattle Sales.

The proprietors of these recognized sheep and cattle sales agreed beforehand to comply with certain conditions calculated to minimize the risk of the conveyance of disease, and a Veterinary Inspector of the Ministry attended each of the sales to ensure that the conditions laid down were fulfilled.

In addition to the animals imported from sales the Ministry, having carried out strict investigations, issued permits for the importation from farms in Scotland to farms in Northern Ireland of 38 cattle, 142 sheep, 4 swine and 2 goats. The 38 cattle from farms in Scotland were comprised of the following breeds :—12 Ayrshire, 7 Aberdeen Angus, 7 Galloway, 6 Shorthorn, 5 British Friesian and 1 Red Poll; and 129 of the sheep similarly imported were Cheviots, the remainder being Border Leicester.

The swine importation permits were for 2 Large White and 2 Middle White pigs, while the goats were 1 Anglo-Nubian and 1 Anglo-Nubian-Swiss.

All animals imported whether from Sales or from farms were required to be isolated for 10 days at their destination.

Exportation of Horses to Places Abroad.

Thirty-one export certificates were granted by the Ministry covering the export of twenty-eight horses for the United States of America and three horses and one ass to Canada.

Bovine Tuberculosis (Northern Ireland) Order, 1926.

A conference between representatives of the eight local authorities in Northern Ireland and officers of the Ministry was held on 17th June, 1927, at which it was unanimously decided to adopt the humane killer for the purpose of slaughtering animals under the above-mentioned Order.

The new Bovine Tuberculosis Order is working smoothly, and it is satisfactory to note increasing tendency on the part of farmers to report suspected cases. It is gratifying also to observe that as foreshadowed in the last annual report of the Ministry the administrative expenses arising out of the working of the order have been appreciably reduced without affecting the compensation awarded.

Regulations affecting the export of Plants.

In connexion with the export of plants to foreign countries the Ministry arranged for the inspection and certification of consignments in accordance with the requirements of the various importing countries. 192 consignments exported from Northern Ireland were dealt with during the year, the chief importing countries being Canada, United States of America, New Zealand and India. The consignments were, in the main, composed of rose trees, rose stocks, herbaceous plants, bulbs and shrubs.

The usual periodical inspections of nurseries in Northern Ireland were carried out during the year, the more important nurseries being inspected on two or three occasions. The health of the plants in the nurseries was generally found satisfactory.

In pursuance of its policy of apprising nurserymen of the regulations governing the admission of plants, etc., into foreign countries, the information which the Ministry received from time to time was passed on to those concerned. It may here be mentioned that the regulations which permitted the unrestricted entry of narcissus bulbs into the United States were repealed, it being considered by the authorities that sufficient supplies of the principal varieties were available in that country to meet essential propagation needs.

Destructive Insects and Pests (Northern Ireland) Order of 1922.

Under this Order, which provides that all plants imported into Northern Ireland from foreign countries must be certified as free from injurious diseases and insect pests, certificates were received in respect of 491 consignments, which were composed chiefly of bulbs and shrubs imported from Holland, Belgium and France.

An Order entitled "The Importation of Potatoes (Malta and Canary Islands) (Northern Ireland) Order of 1927" was made by the Ministry on the 8th July prohibiting the landing in Northern Ireland of potatoes grown in Malta or the Canary Islands unless accompanied by the certificate prescribed by the Destructive Insects and Pests (Northern Ireland) Order of 1922.

With a view to prevent the introduction of pests of the elm tree, the landing in Northern Ireland from any continental country of any living elm tree was prohibited by an Order made on the 15th February, 1927.

The Sale of Diseased Plants (Northern Ireland) Order of 1922.

The Ministry's inspectors and the horticultural instructors in the various counties attended 27 auctions of nursery stock. No cases of disease were, however, found in any of the plants exposed for sale.

*American Gooseberry Mildew and Black Currant Mite
Ireland Order 1912.*

During the year 34 cases of American gooseberry mildew and 21 cases of black currant mite were reported by the Horticultural Instructors. These numbers indicate an increase on the figures reported for the previous year which, in the case of American gooseberry mildew, may be attributed to the wet season. In the black currant mite cases the owners voluntarily destroyed the bushes, and the instructors advised as to the treatment of bushes which were affected with American gooseberry mildew.

The importation of gooseberry and currant bushes from Great Britain is governed by this Order, and the Ministry issued 45 licences in respect of 4,713 bushes imported from England.

Weeds and Agricultural Seeds (Ireland) Act, 1909.

Noxious Weeds:—As in previous years a campaign was conducted during the summer with a view to securing the destruction of noxious weeds in Northern Ireland. Prior to the commencement of the campaign a circular, a copy of which appears in the appendices, was distributed to farmers in Northern Ireland pointing out the advisability of having the weeds, to which the Act applies, destroyed before seeding time. As a result of this propaganda a considerable number of farmers destroyed the weeds on their land.

Fourteen officers were employed on the work of inspection, and they commenced operations in the second week of July and continued until the middle of August. 7,715 farms were visited where noxious weeds were prevalent, and of this number the inspectors were able to secure the destruction of the weeds on 5,555 holdings without serving a notice. In the remaining 2,160 cases notices requiring the destruction of the weeds within a given time were issued. During the course of their second inspections, the inspectors found that in practically all cases the weeds had been destroyed; in only thirteen instances were the requirements of the notice not complied with; proceedings were instituted and convictions secured in five of these cases, warning notices being issued in the remaining eight.

Agricultural Seeds :—Under the Act the Ministry is authorized to publish particulars of unsatisfactory samples of seeds, including the names and addresses of the persons on whose premises the samples were drawn, and of the persons from whom the seeds were stated to have been procured. Up to the present year the Ministry did not exercise its authority in this matter, but in February a circular was issued to the seed traders intimating that publication would be made in future in any cases where samples were found on test to be unsatisfactory. A copy of this circular will be found on page 140 of the appendices.

During the year 263 samples were drawn by the official samplers and analysed at the Ministry's seed testing station. On the whole the samples were satisfactory, but it was considered necessary to publish the particulars referred to in the preceding paragraph regarding three unsatisfactory samples.

Bee Pest Prevention (Ireland) Act, 1908.

It is satisfactory to record a considerable increase in the number of stocks of bees in Northern Ireland in 1927, the number of stocks on holdings of over one-quarter acre being 2,283 in 1927 as against 1,413 in the previous year. This increase is largely due to the favourable season during the period of the honey flow in 1926. The poor weather conditions, however, during June and July last have caused an increase in the number of outbreaks of disease, the figures for 1927 and 1926 being 22 and 19 respectively for foul brood and 84 and 12 in the case of Acarine or Isle of Wight disease. Weather conditions in 1927 also militated against the yield of honey, the quantity of surplus honey removed from the hives being roughly one-third less than in 1926.

The instructors in bee-keeping during the period under review visited 599 apiaries and examined 1,800 stocks of bees. As there was, during a great part of the year, no instructor in bee-keeping in county Tyrone the figures are not comparable with those for the whole of Northern Ireland published in last year's report.

Fertilisers and Feeding Stuffs Act, 1906.

The county agricultural instructors who are the official samplers under the Act, took for the information of the Ministry samples of fertilisers and feeding stuffs during the year as follows :—

Fertilisers.		Feeding Stuffs.		Total.
Official.	Unofficial.	Official.	Unofficial.	
7	20	7	53	87

For failing to furnish to the purchaser of a quantity of decorticated cotton cake an invoice as required by the Act, and for supplying him with a description of the commodity false in a material particular to the prejudice of the purchaser, a merchant in county Antrim was prosecuted and a conviction on each count was obtained.

Fertilisers and Feeding Stuffs Act, 1926.

This measure was passed by the Imperial Parliament, but at the request of the Ministry, Northern Ireland was brought within its scope, the fertiliser and feeding stuff trade here and in Great Britain being so interlocked that it was considered desirable that the law on the subject in both countries should be identical. In order to bring the coming change to the notice of the trade in Northern Ireland, a circular, a copy of which will be found on pages 137 and 138 of the appendices, was issued.

The Act will come into force as soon as the regulations thereunder have been settled. These regulations, which are very elaborate, are at present being considered by an Advisory Committee on which Northern Ireland is represented.

Spraying Materials.

The Ministry had a number of samples of various descriptions of spraying materials drawn and tested. No case of an inferior spraying material was, however, discovered.

10. FLAX AND POTATO INDUSTRIES.

(a) Flax Industry.

A decrease in the acreage under flax is again to be recorded. In 1927 the acreage was 26,334 as compared with 30,518 in 1926. This decrease was due mainly to the low prices for flax which prevailed when the sowing of flaxseed for the 1927 season was being contemplated. In the month of April the average price of flax per stone was only 9/11½d, a decrease of 1/1d per stone from the average price for the previous month.

Reference was made in the last annual report to the efforts of the Ministry to propagate seed of the "J.W.S." variety, with a view to building up supplies sufficient for Northern Ireland requirements. In the spring of 1926 some 22½ tons were distributed by The Flax Industry Development Society to Northern Ireland growers, on the condition that each grower would save the seed from half of the resulting crop. It has been found, however, that, owing to the climatic conditions which generally prevail in this country during the flax harvest, it would be impossible in most seasons to save seed from the flax crop and, therefore, arrangements were made through the Empire Marketing Board and the Canadian Department of Agriculture for the propagation in Canada of seed of this variety for Empire requirements.

A scheme was devised whereby 25 tons of "J.W.S." seed were sent to Canada, where it was grown in 1927 under the control of the Canadian Department of Agriculture, the cost

of the seed being defrayed by the Empire Marketing Board. 24½ tons were distributed to growers in the province of Ontario, where flax is grown in the ordinary course for both fibre and seed. The greater part of the seed from this year's crop will be sown in Ontario in 1928, but a portion of it will be sent to Northern Ireland. It is hoped that for the 1929 season substantial supplies will be available from Ontario for Northern Ireland growers. The remaining 10 cwt. of seed was distributed through the Canadian Seed Growers' Association to eight of its members to be grown experimentally in the prairie provinces of Manitoba, Saskatchewan and Alberta, districts in which flax is grown only for its seed. The object of this experiment is twofold :—(1) to ascertain the yield and thereby to estimate an economic price at which farmers in these provinces could grow the crop, and (2) to test the suitability of the seed as grown in these provinces for the production of flax for fibre in Northern Ireland. Favourable reports were received of the growing crops of "J.W.S." flax both from Ontario and from the three prairie provinces.

With a view to ascertaining whether it would be practicable for New Zealand to supply part of the Northern Ireland requirements of "J.W.S." seed arrangements were made with the Principal whereby 2 cwt. of "J.W.S." seed was grown on the Canterbury Agricultural College Farm, Christchurch, in the season of 1926-27. From the reports that have been received it would appear that the production of "J.W.S." flaxseed was likely to prove remunerative in New Zealand at the prices which this variety of seed commands in Northern Ireland. A limited quantity of the "J.W.S." flaxseed as produced in New Zealand was grown during the past season in this country by a number of farmers and by the Ministry in its flax variety trials, and judging from the appearance of the growing crops this seed appears to be very promising. The propagation of this variety will be continued in New Zealand during the season 1927-28.

Flax Variety Trials.

At five centres in the Coleraine district trials were carried out in which six pure-line varieties of flaxseed were compared with the ordinary standard variety "Pernau Crown." Comparison was also made in these trials of seed of the "J.W.S." variety produced in four different countries. The varieties of seed under test were as follows :—

Blenda Pure Line	Ex Svalof, Sweden.
Herkules do.	Do.
Dutch Pure Line H	Ex Holland.
Danish Pure Line No. 21	Ex Denmark.
Pure Line No. 6	Ex Canada.
J.W.S.	Ex Ontario, Canada.
Do.	Ex Nova Scotia.
Do.	Ex New Zealand.
Do.	Ex Somerset, England.
Pernau Crown.	

Propagation of Pure Lines of Flax.

In connexion with this work about two acres at Limavady were laid down with seed of the varieties M1/14, M7/18, M3/16 and Pure Line No. 6, all of which are promising pure line varieties.

Flax Demonstrations.

A number of demonstration plots were laid down at various centres throughout Northern Ireland in which seed of the "J.W.S." variety was grown alongside crops from Dutch and Riga seed in order to give farmers an opportunity of comparing "J.W.S." with the ordinary commercial varieties.

General.

As in previous years, the Ministry issued a leaflet giving the latest available information as to the quantity and the quality of the various kinds of flaxseed available for sowing in 1927.

Scutch Mills Act (Northern Ireland), 1923.

The Ministry inspected 116 scutch mills in various parts of the country during the scutching season. No cases were reported of infringement of the provisions of the Act.

Tow Prices.

The collection and publication at regular intervals of information as to the current prices of tow at various centres in Northern Ireland were carried out during the year, in order that farmers might be in possession of the latest available information as to current prices when disposing of their tow.

Instructors.

Five officers were as heretofore, employed mainly on flax instruction duties, at various centres throughout the province.

(b) Potato Industry.

The area under potatoes in Northern Ireland in 1927 was 153,136 acres, being a slightly increased acreage as compared with that of the previous year. It is very satisfactory to record that the Ministry's policy of encouraging the growing of immune varieties, and thereby minimizing the risk of the spread of black scab disease, is steadily bearing fruit, and that the acreage under such varieties shows a steady increase in each of the past five years. In the year 1923 only 33 per cent. of the total acreage planted was under immunes; in 1924 this figure was increased to 40 per cent.; in 1925 to 47 per cent., and in 1926 to 60 per cent. The acreage under immunes in 1927 was 65 per cent. of the total area planted.

The variety which is most extensively grown in Northern Ireland is Arran Victory (immune), the area planted with this variety being 51,800 acres, or roughly one-third of the total acreage under potatoes. Arran Consul, a new immune variety, which it is hoped will prove suitable for planting in scheduled districts, was grown to the extent of 1,467 acres.

Black Scab in Potatoes Orders.

In December, 1926, the Department of Lands and Agriculture for the Irish Free State imposed, by Order, restrictions on the importation into the Irish Free State of potatoes from Northern Ireland. The Ministry, in consequence, found it necessary to make a complementary Order for the purpose of controlling the movement of potatoes from certain areas adjoining existing scheduled areas.

On the 13th January the Ministry made the Black Scab in Potatoes (Northern Ireland) No. 1 Order, 1927, which continued the provisions of the Black Scab in Potatoes (Northern Ireland) No. 2 Order, 1923, and provided for the scheduling of an additional townland adjoining the area already scheduled in South Down. The new Order also imposed additional restrictions as to the movement of potatoes in certain districts included in the area scheduled.

The Black Scab in Potatoes (Northern Ireland) No. 2 Order, 1927, which was also made on the 13th January, consolidated the provisions of previous Orders scheduling areas in parts of the counties of Londonderry and Tyrone and included in those areas a further district in the neighbourhood of Moneymore. The new Order also contained an important restriction on the planting of certain non-immune varieties in a considerable area adjoining the scheduled areas.

On the 14th June, 1927, the Ministry made the Black Scab in Potatoes (Northern Ireland) No. 3 Order, 1927, which prohibited the movement of cabbage plants from areas scheduled except under licence. This Order was designed to preclude, so far as practicable, the possibility of the spread of black scab disease to unaffected land by means of infected soil adhering to the roots of cabbage plants.

In the administration of these Orders the Ministry was compelled to institute proceedings in fourteen cases where infringements took place. The offences were mainly of two kinds, viz., the planting of non-immune varieties and the unlicensed movement of potatoes from scheduled to non-scheduled areas. Convictions were secured in all cases.

Marketing of Potatoes.

In previous reports reference was made to the Ministry's efforts to secure an improvement in the condition in which potatoes are exported from Northern Ireland. These efforts were continued, as it is a fact that our potato export trade is being seriously

injured by unsatisfactory consignments. Further complaints were received as to grading, dressing and branding, and it was considered advisable to discuss these complaints with some of the principal potato exporters.

Reference was made in the last report to the efforts of the Ministry to develop a market across the channel for potatoes of the Arran Victory variety, and it is gratifying to record that, as a result of these measures, a good demand for potatoes of this variety now exists in South Wales and in the south of England.

In connexion with the important trade in seed potatoes which Northern Ireland has developed with Malta, it was found that, in the North Antrim district, from which seed of the Champion variety is exported, the stocks of that variety were deteriorating. It was accordingly decided to introduce into the district fresh stocks of the variety, and the Ministry, in the spring of 1927, purchased two tons of special stock seed from Scotland and placed it with reliable farmers with a view to building up satisfactory supplies for future years.

Owing chiefly to the shortage of continental supplies, consequent on the poor weather conditions, Northern Ireland exporters developed a very important trade with France during last season. Almost 25,000 tons of potatoes were sent to France from Northern Ireland. A trade was also developed with Spain and Portugal, over 4,000 tons being sent to Spain and some 1,500 tons to Portugal.

In compliance with the regulations of certain importing countries, 601 certificates were issued in respect of consignments of Northern Ireland potatoes to the following countries :—

Channel Islands	...	...	261
Malta	...	...	193
England and Wales	...	...	128
Other countries	...	...	19

These certificates were to the effect that the localities, in which the potatoes were grown, were, so far as the Ministry was aware, free from black scab disease. In addition 492 certificates, as required by the Irish Potatoes Importation (Scotland) Order, 1925, were issued in respect of approximately 4,800 tons of potatoes sent to Scotland.

Inspection of Potatoes for Export.

Scheduled areas. From the scheduled area in county Down 53,128 tons of potatoes were exported last season, as compared with 55,417 tons the previous year. The shipments for the season under review were some 9,000 tons in excess of the average exports for the previous four years. All potatoes exported from the scheduled areas were inspected before shipment.

Non-scheduled areas. The increase mentioned in the last report in the quantity of potatoes inspected in non-scheduled areas prior to shipment was fully maintained during the present year. Inspected exports for 1925-26 were 7,280 tons and the figure for this year is 32,116. This increase is accounted for largely by the abnormal demand from France, Spain and Portugal.

Potatoes Importation (Ireland) Order, 1920.

Under this Order 68 licences were issued for the importation of seed potatoes from Great Britain, the quantity imported being 49 tons. The imports were in the main from Scotland, 44 tons being imported from that country and 5 tons from England. The consignments were chiefly comprised of the varieties Arran Consul, British Queen, Sharpe's Express and Epicure.

Immune varieties and inspection in scheduled areas.

Growers of potatoes in scheduled areas have now 25 different varieties of approved immune potatoes to choose from, and, in addition, certain other immune varieties may be planted under licence in those areas. During the planting season 16 licences of this nature were issued chiefly for the varieties Immune Ashleaf, Ben Lomond, Katie Glover, and King George V. All growing crops of potatoes in the scheduled areas were as usual inspected during the summer.

Inspection of growing crops of potatoes outside scheduled areas.

As in previous seasons the Ministry arranged for the inspection of growing crops of potatoes in areas outside the scheduled districts. The scheme embraces both immune and non-immune varieties, and 2,090 crops qualified for certificates of purity. In addition to this, 212 crops which were not up to the standard required for a purity certificate, but which were at least 97 per cent. pure, were certified, in order that growers might be in a position to comply with the provisions of the Seeds Act, 1920, if disposing of the seed potatoes in England or Wales.

Growers are now beginning to realize the advantages to be gained by having pure seed, as the figures in the following table show :—

Year.	No. of applications received.	Certificates issued.				Total acreage certified.
		Immune.	Non-immune.	Reports.	Total.	
*1922	80	61	—	—	61	120
1923	450	356	—	—	356	819
1924	770	624	*210	*105	939	2,166
1927	1,470	1,220	870	212	2,302	5,591

*When scheme was first in operation

Experimental Work.

Experiments were, as previously, carried out at the Ministry's experimental grounds at Stormont, at the North-West Agricultural School, Strabane, at the Kilkeel trial grounds, and at various centres in the scheduled area. The following is a brief summary of the work, details of which have already been published in leaflet form :—

1. *Variety Trials.* Carried out with the view of determining the merits of new varieties.

2. *Change of Seed Tests.* The object is to compare seed potatoes drawn from various sources with stocks of the same varieties grown at Stormont for several seasons.

3. *Effect of planting seed at different distances apart.*

4. *Tests of different methods of cutting seed.*

5. *Immunity Trials.* These trials are made in conjunction with the English Ministry of Agriculture and the Board of Agriculture for Scotland. Potatoes which are being tested for the second year for immunity from black scab disease by these Departments are tested concurrently by this Ministry at the Kilkeel trial grounds. This year 58 varieties were included in the trials.

In addition, tests are made to assist home potato raisers in ascertaining whether the new varieties which they propagate are immune, and also for the purpose of identifying tubers submitted by inspectors and local growers. 184 varieties were tested for these purposes.

6. At Strabane, tests were carried out with a view to comparing seed from red soil with seed from black soil.

7. In addition to the above-mentioned tests, arrangements were made whereby the seed for the experimental plots of potatoes which are laid down by the instructors in agriculture is supplied from potatoes grown at Strabane. This ensures that seed which is uniform in character is used in the experiments in all counties and thus renders the results more reliable.

11. FORESTRY.

1. Forestry Centres under Direct Control of the Ministry.

(a) *Existing Areas.* The work of planting at the forestry centres particularly Baronscourt and Newcastle, was accelerated during the 1926-27 season, the number of acres planted being 565 as compared with 349 in the previous season. This speeding up was rendered possible by a grant given by the Government with the object of providing work for a number of unemployed labourers. The number of such additional men engaged varied with the season, and was about fifty at the busiest time.

The total area available for afforestation at Baronscourt is 3,034 acres, including 214 acres over and above the area included in the

original lease. Of this total area 1,598 acres have now been taken over, including 179 acres of young wood.

As will be seen from Table I, the total acreage planted by the State in Northern Ireland before the Ministry took over control was 503 acres, and since that time a further area of 2,139 acres has been planted, or an average of over 400 acres annually. The number of trees planted by the Ministry is approximately 3,700,000.

In Table II particulars are given of the numbers and species of trees planted at each centre during the season 1926-27. In every case these were coniferae, the percentage of each species planted being as follows :—

Norway and Sitka Spruce	...	51.4	per cent.
Douglas Fir	...	19.6	„
Scots and Corsican Pine	...	17.6	„
European and Jap Larch	...	7.4	„
Others	...	4.0	„

(b) *New Areas.* The Ministry has been endeavouring to acquire either by purchase or on lease additional areas for afforestation, and with this object twenty-seven estates comprising upwards of 18,000 acres have already been inspected. Considerable difficulty has confronted the Ministry in securing suitable lands at a figure which, for forestry purposes, would be economic. Nevertheless, it is satisfactory to record that negotiations have been concluded, or practically concluded, for the acquisition of the following areas :—

Approximate Area. Acres.	Situation of Land.	Method of Acquisition.
733	Tardree and Carnearney, Co. Antrim.	Purchase
450	Glenarm, County Antrim.	Lease
4,000	Rostrevor, County Down.	Purchase
312	Castlewellan, County Down.	Lease
214	Baronscourt, County Tyrone.	Lease
392	Augher, County Tyrone.	Purchase
34	Clogher, County Tyrone.	Purchase

In the cases of the four smaller areas referred to above the lands are being acquired because of their proximity to existing forestry centres, in conjunction with which they can be worked.

Negotiations are also in progress for the acquisition of six further areas, comprising over 2,700 acres.

2. Grants for Planting.

A scheme was adopted during the year under which grants are made to persons who undertake to plant trees on a commercial scale on their holdings. Particulars of this scheme will be found on page 147 of the appendices. In two cases grants have been provisionally approved.

3. *Supply of Trees from Ministry's Nurseries.*

A scheme will be in operation from November, 1927, under which farmers will be supplied at reduced prices with young forest trees grown in the Ministry's nurseries. A copy of this scheme appears in pages 144 of the appendices.

4. *General.*

In accordance with Section 32 (1) and (2) of the Irish Land Act, 1909, occupiers of holdings purchased under the Irish Land Acts must obtain the permission of the Ministry before cutting down or uprooting trees which are necessary for the ornament or shelter of the holding. During the year such permission was sought in 18 cases, and in 15 instances it was given. The remaining three applications were withdrawn.

At the request of the owners, the Ministry's Forestry Inspector visited the plantations on four estates and gave advice in regard to the value of mature timber and the general working of the plantations.

TABLE I.

Centre	Total Area	Area planted up to 30th September, 1921	Area Planted					Total area planted up to 30th September, 1927
			1921-22	1922-32	1923-24	1924-25	1925-26	1926-27
	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
Baronscourt	3,034	*179	293	174	211	179½	189½	262½
Ballykelly	254	53½	20½	9½	12	7½	7	—
Castlecaldwell	303	103	41	26½	19½	—	13	14½
Knockmany	468	168	23	34½	19½	20	22	30½
Newcastle	582	—	—	—	62	73	117½	257
Hillsborough	435	—	—	—	—	—	—	—
Totals	5,076	503½	377½	244½	324	280	348½	564½
								2,642½

*This area was under young wood when the land was acquired. Since that time 29 acres of the land have been cut over, of which four acres have been replanted.

†In addition the following areas are under old wood, including shelter belts and scrub covered areas :—Ballykelly, 125 acres; Castlecaldwell, 65 acres; Knockmany, 90 acres.

TABLE II.

Plantations made during the year ended 30th September, 1927.

Forest.	Area Planted (acres).			Species planted including replacements. (Thousands)						
	Afforested. Coniferae.	Re- afforested. Conifer.	Total. Conifer.	Scots and Corsican Pine.	European and Jap Larch.	Douglas Fir.	Norway and Sitika Spruce.	Beech.	Others.	Total.
Baronscourt	122.5	140.0	262.5	—	—	116.0	288.8	3.3	12.2	420.3
Ballykelly	—	—	—	—	1.0	3.9	—	—	—	4.9
Castledawell	—	14.5	14.5	1.0	—	—	27.0	—	—	28.0
Knockmany	—	30.5	30.5	—	7.0	37.0	7.0	1.5	3.0	55.5
Newcastle	—	257.0	257.0	168.8	63.5	31.5	172.0	—	—	454.3
Hillsborough	—	—	—	—	—	—	—	—	18.5	—
Total	122.5	442.0	564.5	169.8	71.5	188.4	494.8	4.8	33.7	963.0

12. STATISTICS AND INTELLIGENCE.

The agricultural statistics for 1927 were collected by members of the Royal Ulster Constabulary, 540 selected constables being engaged as enumerators. The country was divided into 635 enumeration districts for each of which the following particulars were obtained :—

Area under crops and division of land.

Area under different varieties of potatoes.

Area under different kinds of fruit.

Area intended to be saved for grass seed.

Numbers of each description of live stock.

Number of deaths amongst cattle from specified diseases.

Number of deaths amongst live stock from all causes.

Number of births of foals, calves, lambs and pigs.

Number of persons engaged in agriculture.

Number of persons occupying more than one farm.

Number of farms extending into more than one enumeration district.

Number of stocks of bees and quantity of honey and wax produced.

Number and area of trees planted and felled.

Number of holdings according to size.

The collection of the statistics commenced on the 1st of June, to which date all the particulars refer. Summaries of the areas under crops and numbers of live stock were forwarded to the Ministry as soon as they were compiled for each district, the first being received on the 29th June, and the last on the 23rd July. The summaries were tabulated and a statement showing the areas under crops and numbers of live stock compiled. This statement was issued on the 25th July almost immediately on the receipt of the last return from the enumerators, and one week earlier than in 1926.

In previous years, the enumerators had sometimes experienced difficulty in obtaining from landholders the correct area of the different parcels of land comprising their holdings, and in order to overcome this difficulty and to enable the enumerators to verify any information received, it was arranged that each sub-district—which is the unit of police organization for the collection of the statistics—should be supplied with a set of the 25in. Ordnance survey maps for the district. These maps show the area of each field and parcel of land, and it was anticipated that considerable assistance would be derived by the enumerators from an intelligent use of the maps with a consequent increase in the accuracy of the information collected. As a result of the 1927 census there is evidence, at least in the more detailed enquiries which enumerators are required to make, that the maps proved of material assistance.

The existing organization for the collection of agricultural statistics in Northern Ireland, whereby each farmer receives annually a personal visit from an enumerator, has enabled a great deal of information to be collected which could not otherwise have

been obtained without difficulty. The Ministry is fully conscious of the advantages enjoyed through having available as enumerators of agricultural statistics a body of disciplined, well-educated men trained in the collection of information. Through the co-operation of the Royal Ulster Constabulary it has been possible to collect a considerable volume of material bearing upon the agricultural resources of the province which has proved of great interest and value. The elaborate character of the enquiries which enumerators are now called upon to conduct has, however, made it extremely desirable to maintain a closer contact between the officials of the Ministry and the police. Accordingly, during the course of the 1927 collection, visits were paid to eleven barracks where discussions took place with enumerators on various aspects of the work. This mutual interchange of opinion cannot fail to have a beneficial result, and it is hoped to continue the system of visiting barracks during the course of the enumeration in coming years.

At the time of harvest the enumerators are requested to obtain information as to the yields of the different crops. Three different visits to a number of farmers in the district are paid, when the following information is obtained :—

- (a) estimates as to the yields of the hay crops ;
- (b) estimates as to the yields of the cereal and potato crops.
- (c) estimates as to the yields of the root crops and flax.

The farmers visited are growers of the various crops, who, in the opinion of the enumerators, are best qualified to give the required information. In 1927 about 3,500 farmers were approached on each occasion with a view to ascertaining the average yields of the crops. The estimates received were subjected to careful scrutiny and used as the basis on which to arrive at the estimated production of the crops. Five statements giving the results of these estimates were issued as follows :—

Hay.	October, 1926.
Grain.	December, 1926.
Potatoes.	December, 1926.
Turnips and Mangels.	January, 1927.
Flax.	January, 1927.

while in February a collected statement, with comments on the production and yield of each crop, was published.

In October, 1926, the first annual report upon the agricultural statistics of Northern Ireland was issued. A second report, dealing with the year 1926, is at present with the printers. This report, which is on the same lines as that for 1925, deals with the principal changes in the agriculture of the province during the year and contains the final figures of areas under crops, production and yield of the principal crops, numbers of live stock, numbers of holdings and farm labourers, together with statistics regarding the areas under different kinds of fruit and varieties of potatoes. Particulars re-

garding the prices of agricultural produce, feeding stuffs, fertilizers and seeds are also included.

Imports and Exports of Animals.

Returns of the number of animals imported and exported through Northern Ireland ports, which were formerly collected by the Imperial Secretary's Department, have, since the 1st April, 1926, been tabulated in the Ministry, and detailed particulars of the movement of live stock through Northern Ireland ports are now included in the agricultural statistics report.

Agricultural Prices.

The publication of information regarding the prices of agricultural produce and live stock, collected from several of the most important markets and fairs in Northern Ireland, was continued throughout the year under review. A statement is issued every Monday giving the average prices of Northern Ireland farm produce during the previous week. Particulars regarding the supplies marketed during the week have recently been incorporated in this statement. Several reports of transactions at fairs in Northern Ireland are also published each week in addition to a report of the Belfast Cattle Market. All these reports may be obtained, free of charge and post free, on application to the Ministry.

The number of fairs from which reports of transactions in live stock were received was increased during the year, additional reports being received from Moneymore each month, whilst it was found desirable to substitute Rathfriland for Banbridge as a centre from which reports are received. Reports were also obtained during certain months in the year from Ballycastle fair, at which large numbers of sheep are offered for sale, whilst through the courtesy of one of the leading auctioneers at Coleraine a report of the sales of live stock at that town is now received each month.

Market Intelligence.—The scheme which was introduced in 1922 for supplying co-operative creameries in Northern Ireland with telegraphic information as to the weekly Copenhagen quotation for Danish butter and the prevailing price of butter on cross-channel markets was discontinued owing to the lack of definite support from creameries. Whilst the discontinuance of the scheme is to be regretted, yet in view of the reduction in the number of subscribers the Ministry was left with no alternative.

A weekly statement was issued regularly throughout the year to itinerant instructors in horticulture giving particulars of the prices of fruit and vegetables in the Belfast market, while in December the usual bulletins were issued regarding market prospects for the Christmas poultry trade. A large number of enquiries regarding the prices and supplies of Northern Ireland agricultural produce were also dealt with.

Journal.—The first issue of the *Journal of the Ministry of Agriculture for Northern Ireland* was published in September, 1927. The object of the *Journal* as explained in the Foreword is "to provide a medium for the publication of the results obtained by the different Research Divisions attached to the Ministry," and the articles have been designedly written in a form which should appeal to the general farming community. It is intended that the *Journal* shall be published annually, and it is hoped that it will prove of the greatest value in linking up the work of the research divisions with the ordinary farming practice of the country.

General.—The Ministry's Monthly Report which has been issued regularly since April, 1926, has obtained widespread publicity from the press. The report aims at summarizing each month the information available regarding the economic position of agriculture in the province, while it also deals with the trend of prices, the volume of imports and exports of the chief agricultural commodities, and the position of agriculture in the principal competitive countries. The issue of this report now amounts to 1,200 copies each month, and there is a steady increase in circulation. Copies may be obtained free of charge and post free on application to the Ministry.

The issue of a weekly statement of the number of pigs bought for bacon curing in Northern Ireland and the Irish Free State was continued during the year, but owing to the development of a live pig market it was also considered desirable to obtain information regarding the prices realized for pigs sold on foot, and, accordingly, particulars were collected and published each week regarding the prices ruling in Belfast. The extension of these reports to cover other centres where the practice of selling pigs alive is being adopted, is at present under consideration.

Owing to the pressure of other work and the necessity for issuing the annual report on the agricultural statistics of 1926 at the earliest possible date, it was not found possible to make any material progress with the report on the census of agricultural production. It is, however, hoped to have this report ready for publication early in 1928.

At the Royal Ulster Agricultural Show, held in May, a number of charts, graphs and plans were exhibited, the principal object being to show the changes which have occurred in the agriculture of Northern Ireland during the past fifty years and illustrating the great decrease in the ploughed area which has taken place during this period. Attention was also directed to the question of the efficient management of the small farms into which the province is divided, and charts were on view showing the relatively large numbers of horses and farm implements per 100 acres of land on the smaller farms. Farmers were invited to consider the possibility of reducing the heavy expenditure represented by these items by means of mutual assistance and co-operation in the use of horses and machinery. Among other charts exhibited was one showing the importance of

winter egg production, while another showed the density of the pig population in Northern Ireland and in a number of other pig producing countries.

Leaflets.—During the period under review, leaflets dealing with the following subjects were prepared by members of the technical and research staffs, and became available for issue :—

Tuberculosis in Poultry.

Results of Experiments with Varieties of Crops.

The Breeding and Rearing of Pigs.

A Monthly Calendar of Duties for Winter Egg Production.

The Care and Management of Sheep.

Baby Beef Production.

American Gooseberry Mildew.

Circulars.—

Why pay a tax on the Horns of Cattle?

War on Weeds.

Store Cattle.

Crop Insurance.

The desire of the agricultural community to keep abreast of the latest developments pertaining to the industry is evidenced by the fact that upwards of 170,000 copies of leaflets were issued during the year. This is a somewhat smaller number than in the previous year, when 175,000 leaflets were issued, but during 1925-26 seventeen new leaflets were published as compared with only seven during 1926-27. In addition to the educational leaflets, a number of advisory pamphlets dealing with methods to be adopted in order to combat the inroads of plant pests were issued on the following subjects :—

Weeds ;

Charlock ;

Potato Spraying ;

whilst particular attention was directed to the importance of marketing eggs in a fresh condition.

Supplies of leaflets were available at the Royal Ulster Agricultural Society's show at Balmoral, and at agricultural shows held at other centres.

Publicity.—The public press was utilized to a large extent during the year as a means of bringing items of special interest to the notice of the farming community, and also of directing attention to orders regarding the enforcement of regulations. A number of articles dealing with special phases of agricultural practice were also issued.

Library.—During the year ended 30th September, 1927, there was a further increase in the number of accessions to the library, the number of publications received during the period being 3,200, in addition to a very considerable number of agricultural and farming journals dealing with agriculture in general and with questions of

topical interest. The number of publications (excluding all periodicals) in the library at the end of September, 1927, was approximately 14,050, as compared with 12,000 at the corresponding date in 1926.

A great part of the literature received in the library was obtained, as in previous years, by the exchange system operating between the Ministry and various agricultural and scientific bodies at home, in the Colonies, Europe and America ; and during the year under review exchange relations were also established with a number of additional institutions which have generously supplied the Ministry from time to time with publications of special interest to the officers of the inspectorial staff and the research divisions.

The number of enquiries dealt with during the year was about the same as in the preceding year, and the number of publications issued on loan during the period in response to special enquiries was over 1,000, representing an increase of approximately ten per cent. on the corresponding figure for the previous twelve months. Translations, of which approximately the same number were made as in the previous year, dealt with the following subjects among others :—

Danish Public Health Regulations regarding Transport of Milk ;
Swedish Experiments on Flax Breeding and Investigations into the Biological aspect of Flowering in the Breeding of fodder plants ;

Dutch Legislation relating to Dairy by-products ;

Swiss Investigations into the action of Fungicides and Insecticides on metals and alloys used in manufacture of spraying apparatus ;

Regulations regarding the Importation of Potatoes into Morocco ;

Research carried out in Switzerland on Diseases and Insect Pests of Cherry Trees.

Considerable progress was made with the re-classification of the publications in the library by the Brussels Extension of the Dewey Decimal System, and about 3,000 publications have now been classified in accordance with this system in addition to all accessions received during the year.

13. SURVEYS.

(a) *Ordnance Survey.*

Field Work.—During the year the work of the Department in the field consisted of the continuance of the revision of the 25in. scale maps of county Londonderry ; 18,767 acres were revised, including townlands and other boundaries. In addition, 139½ miles of roads were re-levelled.

Drawing and Printing.—The work in the office consisted of the drawing, etc., of maps of counties Down, Antrim and Londonderry, and the printing of maps of counties Down and Antrim,

Maps on the 25in. scale were re-drawn in county Londonderry covering 23,147 acres. 69,063 acres were re-computed in county Antrim. Maps on a scale of 12in. to 1 mile were corrected in county Down covering an area of 193,493 acres in preparation for the revision of the 6in. scale maps of that county.

Special maps of Bangor, revised to 1926, were prepared and published on 6in. and 50in. scales. The latter was enlarged from the 25in. scale.

Eighty-seven maps were re-published, and in all some 5,018 maps were printed.

The whole of the revised maps of county Down on the 25in. scale have now been published.

Sales.—The number of maps sold was 8,941, to the value of £1,131 8s 11d, and the receipts during the period were £1,109 10s 11d.

Issues under Copyright Act.—Presentation copies under the Copyright Acts amounted to 346.

Stock.—The stock of maps, all scales, held on the 30th September, 1927, was 123,693.

New Agent.—At the request of local authorities an agency was established in Coleraine.

(b) *Geological Survey.*

The small demand for maps and memoirs was supplied.

I have the honour to be

Your Grace's faithful Servant,

E. M. ARCHDALE,

Minister.

JAMES S. GORDON,

Secretary.

MINISTRY OF AGRICULTURE,
WELLINGTON PLACE,
BELFAST.

31st December, 1927.

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Officials of County Committees of Agriculture.

ANTRIM :—

<i>Chairman:</i>	...	Lieut.-Col. Patrick, D.L., Dunminning, Glarryford.
<i>Vice-Chairman:</i>	...	Charles B. Smith, Cragoran, Larne Harbour.
<i>Secretary:</i>	...	A. B. Clarke, B.A., County Courthouse, Belfast.
<i>Instructors:</i>	...	P. T. O'Hare, A.R.C.Sc.I. (Agriculture).
		R. D. Mackay, N.D.A., N.D.D. (Hons.) (Agriculture).
		R. H. Clarke (Horticulture and Bee-keeping).
		W.-R. Saunderson (Horticulture and Bee-keeping).
		Miss A. M. Nedwill (Poultry-keeping and Butter-
		making).
		Miss A. Mahony (Poultry-keeping and Butter-
		making).
		P. M'Hugh (Agricultural Overseer).
		J. M'Dowell (Agricultural Overseer).

ARMAGH :—

<i>Chairman:</i>	...	J. J. W. Dunlop, Rosemount, Annaghmore.
<i>Vice-Chairman:</i>	...	R. R. Murphy, J.P., Lislea, Keady.
<i>Agricultural</i>		
<i>Organizer:</i>	...	†J. Morrison, B.Sc., N.D.A., 4 College Street, Armagh.
<i>Secretary:</i>	...	*R. T. Huston, M.R.C.V.S., Dean's Bridge, Armagh.
<i>Instructors:</i>	...	J. Bradshaw, B.Sc. (Agr.), N.D.A. (Agriculture).
		J. Hagan (Horticulture and Bee-keeping).
		J. Scrimgeour (Horticulture and Bee-keeping).
		Miss A. G. English (Poultry-keeping and Butter-
		making).
		J. Graham (Agricultural Overseer).

DOWN :—

<i>Chairman:</i>	...	James Ireland, J.P., Ivyholme, Lessans, Saintfield.
<i>Vice-Chairman:</i>	...	George Wallace, J.P., Lakeview, Corbet, Banbridge.
<i>Secretary:</i>	...	A. J. Morrow, 2 Avonmore Terrace, Balmoral,
		Belfast.
<i>Instructors:</i>	...	R. W. Dickson, A.R.C.Sc.I. (Agriculture).
		**J. Morrison, B.Sc., N.D.A. (Agriculture).
		†R. F. Small, B.Agr. (Agriculture).
		T. Scott (Horticulture and Bee-keeping).
		D. W. Baillie (Horticulture and Bee-keeping).
		Miss W. M'Mullen (Poultry-keeping and Butter-
		making).
		Miss L. Walters (Poultry-keeping and Butter-
		making).
		J. G. Jamieson (Agricultural Overseer).
		V. Boyce (Agricultural Overseer).

FERMANAGH :—

<i>Chairman:</i>	...	Rev. Canon John Hall, Garvary, Enniskillen.
<i>Vice-Chairman:</i>	...	Senator Porter-Porter, D.L., Belle Isle, Lisbellaw.
<i>Secretary:</i>	...	W. H. West, Courthouse, Enniskillen.
<i>Instructors:</i>	...	D. T. Ritchie (Agriculture).
		A. E. Johnston, A.R.C.Sc.I. (Horticulture and Bee-
		keeping).
		Miss A. M. Callery (Poultry-keeping).
		J. J. M'Ferran (Agricultural Overseer).
		T. C. Skelly (Agricultural Overseer).

†To assume duty on 1st November, 1927.

*Died 23rd June, 1927.

**Resigned as from 31st October, 1927,

LONDONDERRY :—

- Chairman:* ... Robert Guthrie, J.P., Sheep Hill, Ballykelly.
Vice-Chairman: ... H. E. Thompson, J.P., M.B.E., Ballindrum House,
 Coagh, Moneymore.
Secretary: ... T. K. Caldwell, Courthouse, Coleraine.
Instructors: ... D. R. Aiken (Agriculture).
 A. M'L. May (Horticulture and Bee-keeping).
 Miss G. M'Lean (Poultry-keeping and Butter-
 making).
 Miss E. E. Clarke (Poultry-keeping and Butter-
 making).
 A. J. M'Farland (Agricultural Overseer).
 E. Graham (Agricultural Overseer).

TYRONE :—

- Chairman:* ... John Johnston, Mountjoy East, Omagh.
Vice-Chairman: ... Thomas Hegan, J.P., Desertcreat, Tullyhogue.
Secretary: ... W. Walsh, Courthouse, Omagh.
Instructors: ... E. S. Daly, A.R.C.Sc.I. (Agriculture).
 W. J. Patterson, A.R.C.Sc.I., N.D.A. (Agriculture).
 J. Algie, B.Sc. (Agriculture).
 Miss M. H. Davidson (Poultry-keeping).
 Miss M. A. C. Woods (Poultry-keeping).
 P. Dolan (Agricultural Overseer).
 J. M. Flanagan (Agricultural Overseer).

**Account of Parliamentary Grants in the Year ended
31st March, 1927.**

Vote Class VI, No. 2, Ministry of Agriculture.

(Moneys voted by Parliament to defray the expenses of the Ministry of Agriculture in respect of Agricultural Education and Research, Improvement of Live Stock, Agricultural Development, Agricultural Statistics and Afforestation, including sundry Grants-in-Aid and certain Capital Expenditure under 14 and 15 Geo. V., Chap.13, s.i. (N.I.))

RECEIPTS.			PAYMENTS.		
	£	s d		£	s d
Parliamentary Grant	114,033	0 0	Agricultural Research and Faculty of Agriculture ...	16,889	6 6
Appropriations-in-Aid	20,607	8 6	Building Grant to Queen's University .	10,117	10 0
			Hillsborough Research Station and Experimental Farm ...	19,537	7 8
			Agricultural Education (net.) ...	7,868	10 1
			Improvement of Live Stock ...	9,346	12 2
			Live Stock Breeding Acts ...	335	8 0
			Animal Quarantine Station ...	201	8 0
			Diseases of Animals, Grant in Aid ...	3,524	6 4
			Replacement of Live Stock ...	691	13 7
			Poultry Industry ...	288	10 0
			Marketing of Eggs ...	1,530	6 4
			Dairying Industry ...	373	12 11
			Grants to County Committees ...	27,758	13 9
			Grants to Agricultural Societies, etc. ...	2,219	13 3
			Building Grant to Royal Ulster Agricultural Society ...	1,500	0 0
			Flax and Potato Industries ...	8,605	4 8
			Seed Supply Schemes .	4,452	13 1
			Weeds Act ...	593	12 1
			Forestry ...	4,939	7 4
			Unemployment Relief Work (Forestry) ...	3,159	6
			Purchase of New Areas for Afforestation ...	—	—
			Collection of Agricultural Statistics ...	2,517	14 11
			Special Services ...	—	—
			Miscellaneous ...	81	18 5
			Balance on 31st March, 1927 (to be surrendered) ...	8,107	12 11
Total	£134,640	8 6	Total	£134,640	8 6

**Account of Parliamentary Grants in the Year ended
31st March, 1927.**

Vote, Class VI, No. 3, Ministry of Agriculture.

(Monies voted by Parliament to defray the expenses of the Ministry
in respect of Ordnance Survey and Geological Survey.)

RECEIPTS.			PAYMENTS.		
	£	s d		£	s d
Parliamentary Grant ...	7,957	0 0	Salaries, Wages and Allowances ...	7,993	5 2
Appropriations-in-Aid .	1,279	8 0	Travelling, Subsistence and Removal Expenses ...	66	12 9
			Rent and Rates ...	255	12 10
			Fuel, Light, Water, Cleaning Articles, etc. ...	93	5 6
			Maintenance and Repairs ...	76	5 10
			Furniture and Fittings ...	11	2 1
			Incidental Expenses ...	63	15 4
			Postage, Telegrams and Telephones ...	34	19 1
			Materials for Map Production ...	239	8 10
			Geological Survey ...	—	
			Balance on 31st March, 1927 (to be surrendered) ...	402	5 7
	£9,236	8 0		£9,236	8 0

Summary of Loan Account on 31st March, 1927.

Nature of Loan.	Loans outstanding on 31st March, 1926			Loans issued in 1926-27.			Principal repaid in 1926-27.			Interest received in 1926-27.			Loans outstanding on 31st March, 1927		
	No.	Amount.		No.	Amount.		No.	Amount.		No.	Amount.		No.	Amount.	
		£	s. d.		£	s. d.		£	s. d.		£	s. d.		£	s. d.
For the purchase of stallions	25	1,295	9 8	1	122	4 7		373	1 9		58	16 10	26	£1,044	12 6
For the purchase of bulls	2	69	6 0	—	—	—		54	12 0		4	12 1	1	14	14 0
For the purchase of agricultural machinery & implements	2	271	2 6	—	—	—		90	7 6		11	15 6	2	180	15 0
Total	29	1,635	18 2	1	122	4 7		518	1 3		75	4 5	29	1,240	1 6

Table showing by Counties the Amounts contributed from Local Rates, and the Amounts contributed by the Ministry for the purposes of Agricultural Schemes under Local Statutory Committees during the year ended 31st March, 1927.

COUNTY.	Rate in the £.	CONTRIBUTIONS FROM THE MINISTRY.				
		Total Produce of and Contributions from Local Rate.	General Grant.	Additional Grant for Agricultural Development.	Agricultural Classes Grants.	Total.
		£ s. d.	£	£ s. d.	£ s. d.	£ s. d.
Antrim	1.	2,565 17 0.	*5,615	1,228 9 2	182 1 6	7,025 10 8
Armagh	1	1,469 5 0	2,832	329 16 0	33 15 4	3,195 11 4
Down	1	2,840 18 9	4,846	794 14 6	115 12 6	5,756 7 0
Fermanagh	1.	950 0 0	2,653	656 13 3	40 16 8	3,360 9 11
Londonderry	1	1,216 17 10	3,048	664 4 0	106 7 6	3,818 11 6
Tyrone	1	1,742 8 4.	4,343	1,115 6 0	141 10 0	5,599 16 0
Total		10,785 6 11	23,347	4,789 2 11	620 3 6	28,756 6 5

*This includes a grant-in-aid of £1,000 in respect of Greenmount Agricultural College.

Table showing Expenditure on Agricultural and Live Stock Schemes by County Committees of Agriculture during the Year ended 31st March, 1927.

County	Itinerant Instruction in Agriculture	Winter Agricultural Classes	Horticulture and Bee- keeping	Poultry- keeping and Butter- making	Live Stock	Subsidies to Shows	Grants to Milk Recording Associations	Miscel- laneous Allocations	General Adminis- tration	Scholarships	TOTALS
	£ s d	£ s d	£ s d	£ s d	£ s d	£ s d	£ s d	£ s d	£ s d	£ s d	£ s d
Antrim	705 5 4	49 11 7	931 12 11	995 8 5	2,232 11 9	448 17 0	140 0 0	(a) 437 18 1	770 0 5	(b) 1,924 7 3	8,635 12 9
Armagh	714 19 0	(c) 81 18 6	996 0 0	600 8 5	954 11 9	211 3 1	40 0 0	—	702 6 4	235 5 0	4,536 12 1
Down	1,139 16 3	65 6 2	958 16 6	1,199 12 3	2,519 2 1	450 4 5	90 0 0	(d) 145 7 0	1,032 1 8	811 10 0	8,411 16 4
Fermanagh	740 10 4	20 14 10	343 11 1	683 1 4	872 17 8	204 17 0	40 0 0	(e) 41 10 0	859 14 10	153 15 0	3,960 12 1
L'donderry	685 19 3	83 11 5	477 10 3	934 19 7	1,070 14 10	118 9 5	80 0 0	—	668 17 10	341 11 3	4,461 13 10
Tyrone	1,286 3 9	33 9 8	455 10 7	978 12 10	2,004 1 0	274 0 2	120 0 0	—	919 17 3	510 0 0	6,581 15 4
Total	5,272 13 11	334 12 3	4,163 1 4	5,392 2 10	9,653 19 1	1,707 11 1	510 0 0	634 15 1	4,952 18 4	3,976 8 6	36,588 2 5

(a) (1) For Cottage and Farm Prizes ... £85 0 4
 (2) For Agricultural Overseer ... 331 15 9
 (3) For Seed Potato Scheme ... 21 2 0

(b) Includes £1,185 4s 9d upkeep of Greenmount Agricultural College.
 (c) Includes £51 13s 0d for lectures in Veterinary Hygiene.
 (d) For Cottage and Farm Prizes.
 (e) For Cottage and Farm Prizes.

**Table showing Expenditure on Special Development Schemes by
County Committees of Agriculture during the period ended
31st March, 1927.**

County.	Itinerant Instruction in Agriculture	Agricultural Overseers.	Improve- ment of Pastures.	(a) Improve- ment of Mountain Sheep.	Totals.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Antrim	544 8 1	289 16 0	93 3 0	195 2 0	1,122 9 1
Armagh	—	268 13 3	59 4 9	67 11 5	395 9 5
Down	—	584 14 2	106 3 9	—	690 17 11
Fermanagh	—	613 1 4	2 10 0	—	615 11 4
Londonderry	—	585 17 9	44 2 5	37 6 10	667 7 0
Tyrone	209 19 5	576 19 2	95 6 11	158 10 1	1,040 15 7
Total	754 7 6	2,919 1 8	400 10 10	458 10 4	4,532 10 4

(a) Net expenditure after deducting receipts from sale of rams.

Expenditure of Local Authorities (County Councils) under the Diseases of Animals Acts and the Orders made thereunder and the amounts recouped to Local Authorities as from the General Cattle Diseases (Northern Ireland) Fund during the six months ended 31st March, 1927.

Districts of Local Authorities.	Expenditure of Local Authorities.			Receipts from the dipping of sheep.	Total Net Expenditure.	Amounts repaid to Local Authorities during the six months ended 31/3/27 from the General Cattle Diseases (Northern Ireland) Fund.
	Salaries and Allowances of Officers.	Other Expenses.				
	£	s	d	£	s	d
Co. Antrim	609	16	8
Co. Armagh	234	13	0
Co. Down	252	16	10
Co. Fermanagh	34	0	0
Co. Londonderry	210	17	10
Co. Tyrone	643	19	7
Co. Boro' of Belfast	0	17	9
Co. Boro' of Londonderry	—	—	—

GENERAL CATTLE DISEASES FUND FOR NORTHERN IRELAND (16 Geo. V.C. 4).

Account of receipts and payments in respect of the General and Special Accounts of the above Fund in the year ended 31st March, 1927.

GENERAL ACCOUNT.

RECEIPTS.		PAYMENTS.	
	£ s d		£ s d
Balance on 1st April, 1926, of the General Cattle Diseases (Northern Ireland) Fund, as transferred by the Secretary of State in pursuance of the Transfer of Property (Council of Ireland Services) Order, 1926	3,844 14 6	Recoupments to Local Authorities in respect of Compensation and Expenses under the Diseases of Animals Acts	6,300 13 7
Assessments on Local Authorities	2,593 13 3	Fees	—
Parliamentary Grant (Class VI, No. 2, Sub-head C.4)	2,842 4 5	Travelling Expenses	—
Proportion of Fines in Prosecutions under Diseases of Animals Acts	146 4 7	Miscellaneous Expenses	£14 13 4
Bank Interest	134 3 3	Transferred to Special Account	—
Transferred from Special Account	—	Balance on 31st March, 1927	3,245 13 1
	£9,561 0 0		£9,561 0 0

SPECIAL ACCOUNT.

RECEIPTS.		PAYMENTS.	
£	s d	£	s d
Balance on 1st April, 1926	—	Salaries of Staff	86 8 4
Parliamentary Grant (Class VI, No. 2, Sub-head C.4)	682 1 11	Fees	—
Salvage of animals slaughtered in connexion with—		Travelling Expenses	168 6 10
(1) Pleuro pneumonia	—	Miscellaneous expenses including cost of requisities for cleansing and disinfection and casual labour in killing, burying, branding and removal of animals and other petty expenses—	254 15 2
(2) Swine fever	9 9 5	(1) Pleuro pneumonia	—
(3) Foot and Mouth Disease	—	(2) Swine Fever	31 3 8
Transferred from General Account	—	(3) Foot and mouth disease	—
		Compensation to owners of animals slaughtered in connexion with—	31 3 8
		(1) Pleuro pneumonia	—
		(2) Swine Fever	405 12 6
		(3) Foot and mouth disease	—
		Transferred to General Account	405 12 6
		Balance on 31st March, 1927	—
£691 11 4			£691 11 4

Experiments.

- The various Schemes of experiments which were carried out in 1925/26 were continued with the alterations indicated below.

Agricultural Experiments.

1. Discontinuance of Experiments. The test with different varieties of barley and the experiment with phosphatic manures on potatoes were discontinued.
2. New Experiment.

Liming Rotation Experiment No. 2.

Lime to be applied on ploughed and manured ground from two to three weeks before sowing of oats.

Size of each plot— $\frac{1}{4}$ acre.

Type of lime—Either burnt lime or ground limestone, according to local sources of supply.

Dressing of lime—Plot 1. Control.

„ 2. $\frac{1}{2}$ Calculated "lime requirement."

„ 3. Calculated "lime requirement."

The plots should be carefully marked with permanent pegs at time of application of lime. The test may be on ground occupied the previous season by either potatoes or turnips, provided that all the plots at each follow the same crop. The following cereal and hay crops will be weighed. The test should be laid down in a field which is intended to remain in pasture for not more than five years, and the crops throughout the following rotation should be weighed.

Small samples of the grain and straw from all cereal crops on each of the plots will be required.

The artificial manures used during the rotation should, as far as possible, be superphosphate as the source of phosphate, sulphate of ammonia as the source of nitrogen and muriate of potash as the source of potash. The quantities applied should be sufficient to prevent phosphate, nitrogen and potash becoming limiting factors.

The crop yield on all the plots is to be recorded throughout a complete rotation.

3. Minor Alterations.

- (a) Oat Variety Test. The variety "Golden Rain" was substituted for "Tyrone Tawny."
- (b) Rate of Seeding Test. Rates of seeding altered from 8, 12 and 16, to 10, 13 and 16 stones per statute acre.
- (c) Turnip Variety Test. The varieties "Masterpiece" (Webb's) and "Majestic" (Sutton's) were included.
- (d) Manuring of Hay for Seed. Plots 1, 3 and 4 were discontinued and a plot with calcium cyanamide included.
- (e) Manure of "Baby" Beef and Stores. Two plots without artificials were included.

Horticultural Experiments.

1. Discontinuance of experiments. The experiment with ovicidal sprays on apple trees and the American gooseberry mildew experiment were discontinued.
2. Minor Alterations.
 - Acarine Disease. (a) In Experiment A, Stock II, the use of a native queen was made compulsory.
 - (b) The stocks required for Experiment B should be free from acarine disease.

*Live Stock Experiments.**Additional Pig Feeding Experiment.*

Object.—To determine the value of a mixture of minerals with and without added protein in the fattening of pigs.

Conditions.—Three lots of pigs with a minimum of three pigs in each lot.

Lot 1. Control.—To be fed on basal cereal ration plus separated milk or buttermilk.

Lot 2. Protein and Minerals.—To be fed on basal cereal ration plus extracted soya bean meal and mineral mixture.

Lot 3. Minerals only.—To be fed on basal cereal ration plus mineral mixture.

The cereal ration for all three lots to be:—

7	parts by weight	maize meal.
5	" " "	palm kernel meal.
5	" " "	pollard.
2	" " "	ground oats.

Lot 1 to get one quart of milk per pig daily throughout entire test.

Lot 2 to get two parts by weight of extracted soya bean meal to 19 parts by weight of above cereal ration, and 2 per cent. of the following mixture of minerals throughout fattening period:—

5	parts by weight	steamed bone flour.
2	" " "	ground limestone.
1	part	" " salt.
$\frac{1}{2}$	" " "	iron oxide.
$\frac{1}{2}$	" " "	sulphur.

Lot 3 to get 2 per cent. of the same mineral mixture throughout fattening period, but no soya bean meal.

The meals for all three lots to be fed raw, but moistened, and for lot 1 the milk may be given either as a drink after the meals or used to moisten the meals. Potatoes may not be fed to any of the three lots. The experiment should be carried out with house-fed pigs which are not more than 12 weeks old at beginning of test. All the pigs to be from same litter or, if from two litters, an equal number from each litter to be put into each lot. Each lot to be as evenly balanced as possible as regards weight, sex and thriftiness as judged by appearance. Each pig should be clearly marked at beginning of test.

An exact record of individual live weights at beginning and end of test, of dead weights, and of foods consumed to be kept and forwarded to Ministry on prescribed form at end of test.

Subsidy.—The subsidy payable shall not exceed 10s. per pig, with an additional allowances of 10s. to attendant. The maximum subsidy for one experiment shall be £10.

**List of Analysts appointed by the various County and Borough
Councils in Northern Ireland for the purposes of the
Sale of Food and Drugs Acts, 1875—1899.**

County or Borough.	Analyst.	Address.
Antrim ...	J. H. Totton, Esq., B.A., B.Sc., F.I.C.	16 Donegall Sq. South, Belfast.
County Borough of Belfast ...	Do.	Do.
Armagh ...	Do.	Do.
Down ...	J. Hawthorne, Esq., B.A., Ph.D., F.I.C.	Do.
Fermanagh ...	Chas. M'Mullan, Esq., F.I.C.	7 William St. South, Belfast.
Londonderry ...	J. H. Totton, Esq., B.A., B.Sc., F.I.C.	16 Donegall Sq. South, Belfast.
County Borough of Londonderry ...	J. Hawthorne, Esq., B.A., Ph.D., F.I.C.	Do.
Tyrone ...	R. F. Blake, Esq., F.I.C., F.C.S.	126/128 Scottish Provident Buildings, Donegall Sq. West, Belfast.

**GOVERNMENT OF NORTHERN IRELAND.
MINISTRY OF AGRICULTURE.**

BACILLARY WHITE DIARRHOEA.

Chicks which survive an outbreak of bacillary white diarrhoea commonly become "carriers" and, when they reach laying age, produce eggs containing the germ of the disease. Chicks hatched from those eggs are diseased, and infect healthy chicks with which they have contact.

The only method of preventing bacillary white diarrhoea is to eliminate the "carrier" birds. The blood test is the only reliable means of detecting "carriers." If proper measures of testing and sanitation are adopted, the disease can be eradicated from a flock in three years. It should be clearly understood that blood testing has little or no value unless combined with other important precautions which are included below:—

1. Applications for blood testing should be made to the County Instructor in Poultry-keeping who will forward the application to the Ministry's Animal Diseases Division, Stormont, Strandtown, Belfast, stating at the same time alternative dates on which she can collect blood samples. The Animal Diseases Division will inform the County Instructor whether they can carry out the test and, if so, will select a date for the submission of blood samples.

2. Testing is not carried out by the Animal Diseases Division on Mondays or Saturdays. Blood samples must be received by the Division within twenty-four hours of collection.

3. Sterile tubes for the collection of blood samples are dispatched to the farmer immediately prior to the date fixed for testing. Tie-on labels addressed to the Animal Diseases Division are also sent.

4. The blood test, preferably of all the birds in a flock, is at present carried out by the Ministry only in those flocks where the existence of bacillary white diarrhoea has been determined by laboratory examination. Where such examination has not been made *by the Ministry*, owners should enclose with their applications a copy of the laboratory report which confirmed the existence of the disease on the farm.

5. No charge is made for testing blood samples.

6. The flock must be tested twice yearly. Ordinarily this is done in the summer and autumn for heavy breeds and in the autumn and winter for light breeds. The interval between the two tests should not be less than three months and not exceed six months. After the flock has passed two consecutive tests, the testing is carried out once annually. Culling of unprofitable birds should be done before testing.

7. It is recommended that all the birds on the farm which are aged over eight months should be tested. Testing of breeding stock only is not recommended.

8. The result of the test is communicated to the owner and to the County Instructor. The owner must then remove the leg bands from birds which fail to pass the test, and dispose of these birds immediately for table purposes.

9. Birds which pass the test must be placed immediately in houses which have been cleaned and disinfected to the satisfaction of the County Instructor, and on clean land or on land which has been dressed with two tons of quicklime to the statute acre.

10. The following methods of cleaning and disinfection are recommended :—

All movable fittings should be taken out of the house and treated separately. All parts of the house should be swept clean of dirt. The floor, dropping boards, etc., should be scraped, and all parts of the house scrubbed with a stiff brush, using water containing soda. Any defective wood should be removed. Litter, etc., removed from the house should be burned or placed away from poultry. Disinfectant solution should then be applied to the house, preferably with a force-spray pump. The solution must enter all crevices in the house. Sufficient infection may lurk in a neglected crack to spoil all blood testing and other precautions.

All incubators and brooders should be similarly cleaned and disinfected.

11. It is recommended that no hens or pullets should be introduced to a flock under test till they have passed two blood tests at intervals of at least three months.

12. It is strongly recommended that no hatching eggs or chicks should be introduced unless they are from stock which have passed two tests as above, and where the other recommendations are observed.

13. If bacillary white diarrhoea appears in any brood, all the chicks must be destroyed. Any abnormal losses should be at once reported to the Animal Diseases Division.

14. *The flock may be described as free from bacillary white diarrhoea only if it has passed two consecutive tests by the Ministry and if the recommendations detailed above are observed. The stock may not be described in any advertisement or for any trade purpose as being guaranteed free from bacillary white diarrhoea or as having been tested by the Ministry without the express sanction of the Ministry.*

METHOD OF COLLECTING BLOOD SAMPLES.

1. All birds to be tested should have a numbered leg band affixed. The bands are supplied by the Animal Diseases Division at cost price.

2. Birds to be tested should be confined in the house overnight and the blood samples collected next morning before feeding.

3. The following equipment is required for collecting samples :—

- A table;
- Cotton wool;
- Methylated spirit;
- Knife or safety razor blade in holder;
- Pen or pencil;
- Sample tubes (supplied by Ministry).

4. One assistant catches the bird and holds it while the operator plucks the feathers from the under-side of the wing over the vein which runs from the shoulder to the elbow joint. The operator then rubs the bared area with cotton wool wrung out of methylated spirit, and damps the surrounding feathers so that loose dirt does not fall into the collecting tube. An excess of spirit should be avoided as it will mix with the blood and spoil the sample. The operator then cuts the vein with a sharp knife or razor blade and allows the blood to drop directly into the sample tube till it is about half full. If the blood does not run, it may be necessary to collect from the other wing. The tube is then corked, the number of the bird is written immediately on the tube label, and the sample set aside and not disturbed till it has clotted. The operator then wipes the knife or razor blade clean of blood. The operator should take care not to allow the sterile tube or cork to become contaminated, as dirt may render the sample useless for examination.

A piece of cotton wool is then placed over the wound and the wing pressed against the body for a moment, when the bleeding usually stops. If the bleeding continues, cotton wool soaked in tincture of iron perchloride should be placed on the wound.

5. The tubes should then be dispatched, prepaid, *by post* to the address on label supplied with the tubes. A note should be included stating the name and address of the owner and the individual numbers of the birds from which samples are sent.

GOVERNMENT OF NORTHERN IRELAND,
MINISTRY OF AGRICULTURE,
WELLINGTON PLACE, BELFAST.
8th September, 1927.

A.831/27.

AGRICULTURAL DEVELOPMENT FUND.

Sir,

I have to state, for the information of the Committee, that as a result of representations made by the Ministry to the Ministry of Finance with regard to the urgent need for affording additional assistance to the agricultural industry in its present depressed condition, a special grant of £40,000 has recently been made available for expenditure over a period of years through the agency of County Committees of Agriculture in connexion with schemes for the improvement of live stock, viz., cattle, black-face sheep, and swine. This sum of £40,000 has been placed to the credit of a fund held by the Ministry of Finance and called "the Agricultural Development Fund." From the enclosed copy of the Regulations governing the administration of the Fund it will be observed that applications by County Committees of Agriculture for advances from the Fund must be made to this Ministry as follows :—

<i>For quarter ending.</i>	<i>Latest date for making application.</i>
31st December	10th September.
31st March	10th December.
30th June	10th March.
30th September	10th June.

The particulars which each such application must contain are set out in Article (3) (ii) and (iii), and a special form of application is in course of preparation, copies of which will be sent to you at an early date. It will be noted that each application must be submitted *in duplicate*.

The amount available from the Fund for expenditure during the period ending 31st March, 1928, will not exceed £5,000, and the amount available for 1928-29 will be £7,000. It is anticipated that the Fund of £40,000 will enable these supplementary live stock schemes to be carried on for six years.

With regard to the allocation of the sum of £5,000 for expenditure by County Committees in 1927-28, the Ministry has carefully considered the needs of each county, and after taking into account all the relevant factors has allocated the following amounts for County in connexion with the schemes for the improvement of black-face sheep and cattle :—

<i>Improvement of Mountain Sheep.</i>	<i>Improvement of Cattle.</i>	<i>Total.</i>
£	£	£.....

A Payable Order for £ to cover your Committee's application in respect of the purchase of black-face rams during the current quarter was issued on the 16th ultimo. If it should happen that this grant is in excess of the amount expended on the purchase of rams the Ministry will raise no objection to the unexpended balance being used to supplement the allocation for the improvement of cattle in 1927/28.

With regard to the allocation of £ for expenditure in connexion with the improvement of cattle, I have to state that the Ministry has decided that this money shall be devoted to the placing out of bulls on special terms in poor districts before the 31st March, 1928. The Ministry will determine the districts in which these bulls are to be located, and a map, with such districts clearly defined, will be supplied for the information of the Committee at an early date. It is anticipated that the average cost of the bulls will be about £45, and it has been decided that the maximum commitment by a Committee in respect of any one bull shall be £55. If the cost price exceeds £55 the purchaser will be required to bear the excess over £55. The bulls will, if the selected applicants so desire, be bought by the County Committee, or through the Ministry, and sold to the selected applicants at one-third cost price (payable in three equal instalments). The selected applicants would be eligible at the end of each season, provided certain conditions were complied with, for the award of a premium equivalent to the amount of the instalment paid. The following example illustrates how the scheme will work out in practice :—

Purchase price of bull (including delivery), say, £45.

Applicant will pay one-third cost price (£15) as follows :—

<i>Time of Payment.</i>	<i>Amount of Payment.</i>
On delivery	£5
In October following	£5
In October of the next year	£5
Total	£15

The County Committee will pay a premium of £5 in December each year for three years, i.e., £15 in all. The net result will be that for a bull costing £45 the owner pays £15 and receives £15 in premiums. The

selected applicant will, in addition, be required to pay the cost of insurance of the bull. The insurance could most conveniently be effected by the Secretary of the County Committee on the day of purchase.

Each selected applicant would, of course, be required to undertake to retain the bull for three seasons, and not to dispose of it within that period without the approval of the County Committee. At the end of the period the bull would be the property of the applicant.

There should not be any great difficulty in securing a sufficient number of applicants for these "special term" bulls. It is suggested that the Committee should organise an intensive publicity campaign in the districts concerned, and in this connexion the services of the Committee's officers might be utilised. To assist County Committees in the matter the Ministry has arranged for the preparation of a special leaflet setting out fully the terms on which the bulls will be provided, and a supply of copies will be sent to you as soon as possible.

It should be distinctly understood, also, that in connexion with the placing out of these "special term" bulls next season the regulation providing that no two bulls of the same breed shall be located in the county within three statute miles of each other must be observed. It may also be mentioned that Milk Recording Associations may not be provided with "special term" bulls.

The service fee shall not exceed 2s. 6d., and yearling bulls should serve not less than 30 cows, and older bulls not less than 40 cows, exclusive of cows the property of the owner. It is not considered desirable to limit the number of cows which any one farmer may send for service.

As the purchase of the "special term" bulls will take place during the quarter ending 31st March, 1928, it will be necessary that the application on behalf of the Committee for a sum of £ be made to the Ministry on or before the 10th December next.

Allocations for 1928-29.

I. Premium Bulls.

In addition to the "special term" bulls (about 85—90) which it is anticipated will be provided in the early part of 1928, the Ministry has allocated the sum of £2,700 for the location of about 150 additional premium bulls (of the breeds approved in Scheme No. 2) in the six counties in 1928/29. The amount set aside for County is £ which, on the basis of an average premium of £18, will provide for bulls. The premiums in respect of these bulls will not, of course, become payable until the autumn of 1928, and application for the necessary advance from the Fund will not require to be made until the 10th September, 1928, at latest, i.e., in respect of the quarter ending 31st December, 1928.

I have to point out that the funds for the provision of these additional premium bulls are being given on the distinct understanding that the needs of those districts in your county which are not already well supplied with premium bulls will be specially considered, and that every effort will be made to secure applicants in such districts. Furthermore, the Ministry will require that an application from a Milk Recording Association for one premium bull shall automatically be granted. The Ministry will raise no objection to a County Committee granting two or more premiums to one Association. An application from a Milk Recording Association for a premium for an Aberdeen Angus bull should not, however, be granted unless there is a high-class dairy bull already available in the district for the use of members of the Association. An exception to the regulation regarding the location of bulls of the same breed within three statute miles of each other will be permitted in the case of premium bulls held by Milk Recording Associations, as the use of such bulls would be confined to cows belonging to members of the Associations. It may

here be mentioned that the scheme under which the Ministry has hitherto provided high-class dairy bulls for Milk Recording Associations at one-third cost price has now been discontinued, and in future Associations requiring bulls will be instructed to apply for premiums to their respective County Committees of Agriculture.

I have also to point out that the Ministry is prepared to grant loans to selected applicants and also to Milk Recording Associations in connexion with the purchase of premium bulls. Particulars of the terms on which these loans will be granted will be sent to County Committees in due course.

II. "Special Term" Bulls.

The Ministry proposes to allocate the sum of £ for the provision of "special term" bulls in County in the year 1928/29. These bulls would be purchased in the quarter ending 31st March, 1929, and the application for the requisite advance from the Fund would require to be made not later than the 10th December, 1928. If it should happen that the allocation for premium bulls in 1928/29, viz., £ is in excess of the amount payable in premiums in the autumn of 1928 the Ministry would be prepared to approve of the unexpended balance being utilised by the Committee in placing out additional "special term" bulls in March, 1929.

III. Sheep.

The amount available from the Fund for the improvement of black-face sheep in County in 1928/29 will be £ . As the majority of the rams will be purchased during the quarter ending 30th September, 1928, application for the necessary advance should be made not later than the 10th June, 1928.

IV. Swine.

The amount available from the Fund for the provision of premiums to boars in 1928/29 in County will be £ . The boars will be placed out in the spring of 1928, and the Ministry is particularly anxious that they should be located as far as possible in the poor districts of the county. The premiums in respect of these boars will, in the majority of cases, be payable during the quarter ending 31st December, 1928, and application for the necessary advance would accordingly require to be made not later than the 10th September, 1928.

In conclusion, I am to express the hope that the Committee will lose no opportunity of bringing to the knowledge of farmers in the county particulars of these supplementary schemes which have been introduced for their benefit and will make a special effort to secure that a sufficient number of applicants is forthcoming in connexion with each of the various schemes.

I am, Sir,

Your obedient Servant,

JAMES S. GORDON,

Secretary.

To the Secretary,
County Committee of Agriculture.

GOVERNMENT OF NORTHERN IRELAND,
MINISTRY OF AGRICULTURE,
WELLINGTON PLACE, BELFAST.
8th February, 1927.

Circular No. 242.

Sir,

I have to enclose for your information copies of the revised scheme (No. 20) for encouraging Improvement in Dairy Cattle, and to direct your attention to the following important amendments:—

Clause 2 (1). The section relating to the exemption of pure-bred cows which are being tested directly by the Ministry has been deleted. In future such pure-bred cows owned by members must be entered and tested in the Association. Members desiring to have their pure-bred cows inspected, with a view to provisional selection for entry in the Ministry's Register of Pure-bred Dairy Cattle under the provisions of Scheme No. 20a, will be charged an inspection fee of 1s. only, i.e., instead of the fee of 5s. hitherto paid to the Ministry in respect of each pure-bred cow provisionally selected for registration an owner entering a pure-bred cow in an Association will be liable for the membership fee to the Association plus an inspection fee of 1s. to the Ministry.

Clause 2 (1) and 2 (8) (n). The section regarding the tattooing ("R.E.J.") of cows which have failed to yield 6,000 lb. of milk in each of two successive lactation periods has been deleted.

Clause 2 (8) (j). Addition of paragraph regarding the mating of poor yielding cows with bulls of beef type.

Clause 2 (8) (m). The progeny of registered cows will in future be tattooed in the *right* ear looking from behind.

Clause 12 (c). The maximum subsidy payable by the Ministry to an Association towards the purchase of an approved dairy bull will not exceed £73½ (i.e., two-thirds of £110).

Additional copies of the scheme may be had on application to these offices.

I am, Sir,

Your obedient Servant,

JAMES S. GORDON,

Secretary.

The Supervisor of each Milk Recording Association.

GOVERNMENT OF NORTHERN IRELAND,
MINISTRY OF AGRICULTURE,
WELLINGTON PLACE, BELFAST.
11th February, 1927.

A.1978/24.

Circular No. 243.

REGISTRATION OF PURE-BRED DAIRY COWS.

Sir,

With reference to the above subject, I have to inform you that the Ministry has decided that as from 1st January, 1927, pure-bred cows entered under Scheme No. 20a and owned by members of milk recording associations must also be entered and tested in the association. Members of milk recording associations desiring to have pure-bred cows inspected with a view to provisional selection for entry in the Ministry's Register of Pure-bred Dairy Cattle, under the provisions of Scheme No. 20a, will be charged an inspection fee of one shilling instead of the fee of five shillings hitherto payable. Applications for the inspection of pure-bred

cows must be made as formerly on Form A.63, and record of milk yield should be kept on the Form A.64 as well as on the record sheets used by the association. In addition to the milk samples taken by the Ministry's Live Stock Officers samples will also be taken by the supervisor of the association, and the results will be utilised in calculating the total butter-fat yield. The result of this arrangement will be that a greater number of samples per cow will be tested for butter-fat content than has been possible hitherto.

Owners having pure-bred cows which they propose to have tested with a view to registration under Scheme No. 20a will, accordingly, realise the advantages to be gained by their becoming members of milk recording associations where it is possible for them to do so.

It should be clearly understood that records of pure-bred cows tested in a milk recording association will be accepted for the purposes of registration only if the animals have been duly entered and provisionally selected under the provisions of Scheme No. 20a.

In the case of an owner who intends to test pure-bred cows and who is not a member of a milk recording association, the inspection fee per cow provisionally selected will be five shillings as heretofore.

A copy of Scheme No. 20 (revised) is enclosed for your information.

I am, Sir,

Your obedient Servant,

JAMES S. GORDON,

Secretary.

To each owner of pure-bred cows
participating in Scheme No. 20a.

Circular No. 245.

GOVERNMENT OF NORTHERN IRELAND. MINISTRY OF AGRICULTURE.

WAR ON WEEDS.

The object of this circular is to direct attention to the provisions of the Weeds and Agricultural Seeds (Ireland) Act, 1909. Under this Act occupiers of land are required to destroy noxious weeds, including thistle, dock, ragwort (benweed), and charlock. Failure to have weeds destroyed is an offence for which occupiers are liable to be convicted and fined. Inspections of farms for the presence of weeds will be made during July. Farmers are strongly advised in their own interests to make every endeavour to have all weeds destroyed by the time the inspector visits the districts in July.

Harm done by weeds.

Weeds reduce crop yields, depreciate the quality and value of crops, and add to the cost of production. They rob the crops of food. One ton of ragwort (benweed) takes from the soil the equivalent of 75 lb. sulphate of ammonia or considerably more than is removed by one ton of oats. Charlock or preshaugh may reduce the yield from a field of oats by one-half. Weeds shade and dwarf the crop, and even establish themselves in its stead. Weeds mean loss of crop and loss of money.

Value of Weeds Act.

Farmers on whose lands certain weeds are found to be growing when the weeds inspector calls are required under penalty to have them destroyed before seeding occurs. The destruction before seeding is an important step towards the suppression of weeds. When a farmer destroys the weeds on his own farm before they seed and his neighbour

is compelled under the Act to do likewise the labour involved in destruction may be regarded as productive, inasmuch as weed seeds cannot then be blown in either case on to the land that has been cleared and fresh crops of weeds are avoided during the following years.

Destruction before seeding essential.

Think what it means to prevent weeds seeding. One weed plant may produce upwards of 1,000 seeds. If these are allowed to mature and scatter there may, in the following season, be 1,000 weeds for every one of the previous year, and in the next year there may be 1,000 times 1,000, or 1,000,000. This shows clearly the wisdom of the adage, "One year's seeding makes ten years' weeding," and that prevention of seeding is the key to weed suppression.

A Weed War.

Farmers in Northern Ireland! wage a weed war in 1927. Destroy weeds and increase the profits from your labours. Clean the pastures and graze more stock.

How to wage it.

Sow clean seed.

Keep weeds down in tillage crops.

Spray charlock in corn as advised in Leaflet No. 38.

Graze ragwort-infested land with sheep.

Cut or pull docks, thistles and ragwort as opportunity offers, and during spells of wet or showery weather, but always before they flower.

Flowering of weeds is the beginning of trouble—prevent it!

Early pulling or cutting is the method of doing this—do it!

MINISTRY OF AGRICULTURE,
WELLINGTON PLACE, BELFAST.
June, 1927.

GOVERNMENT OF NORTHERN IRELAND,
MINISTRY OF AGRICULTURE,
WELLINGTON PLACE, BELFAST.
May, 1927.

Circular No. 248.

FERTILISERS AND FEEDING STUFFS ACT, 1926.

Sir,

I have to remind you that the above-mentioned Act became law on the 15th December, 1926. This Act, which supersedes the Fertilisers and Feeding Stuffs Act, 1906, cannot, however, become operative earlier than the 1st July, 1927, nor can it come into force until the necessary Regulations are promulgated. These Regulations are being considered at present in consultation with the Advisory Committee appointed under Section 23 of the Act.

Pending the coming into operation of the Act, it would be well that all persons interested should endeavour to make themselves acquainted with the general provisions of the new legislation, and, with this object in view, the Ministry has prepared the accompanying memorandum which summarizes in brief the more salient features of the new Act.

A full comprehension of the new legislation can, of course, be secured only by careful perusal not only of the Act and its Schedules but also, when available, of the Regulations to be made under the Act. It is hoped, however, that the accompanying memorandum will prove helpful as a preliminary.

I am, Sir,

Your obedient Servant,

JAMES S. GORDON,

Secretary.

To the Person, Firm or
Organisation named in the Address.

FERTILISERS AND FEEDING STUFFS ACT, 1926.
GENERAL SUMMARY.

CIVIL LIABILITIES.

(a) Statutory Statement.

The seller of any fertiliser or feeding stuff included in the first two schedules to the Act must, with two exceptions, give to the purchaser on or before delivery or as soon as is reasonably practicable thereafter, a written statement (called in the Act a "Statutory Statement") in a form to be prescribed as to

- (i) the name of the commodity;
- (ii) the particulars regarding the commodity specified in the first two schedules to the Act, and
- (iii) if a feeding stuff contains any ingredient included in the Third Schedule to the Act, the name of such ingredient must be specified.

It should be particularly noted that a Statutory Statement is the basis of civil proceedings only, provided it is in the prescribed form, and that it contains no fraudulent mis-statements.

The two exceptions to the need for Statutory Statements are—

- (1) Sales of articles mixed before delivery at request of purchaser; and
- (2) sales of quantities of 56 lb. or less taken in the presence of the purchaser from a parcel marked with the required particulars.

(b) Warranties in Statutory Statements.

The Statutory Statement has effect as a warranty and forms a basis for civil proceedings for compensation on the part of the purchaser if the statement is incorrect.

In the case of the sale of a feeding stuff there is a warranty that, notwithstanding any contract or notice to the contrary, the article is suitable for use as a feeding stuff, and does not, except as may be expressly stated in the Statutory Statement, contain any ingredient specified in the third schedule to the Act.

The use for a commodity of a name contained in the fourth schedule to the Act constitutes a warranty that the commodity accords with the definition of the name contained in that schedule.

A warranty is implied as to the correctness of any statement made in any written document, other than a Statutory Statement, as to the amount of chemical or other ingredients or as to the fineness of grinding of a fertiliser or as to the amount of the nutritive or other ingredients of a feeding stuff.

Criminal Liabilities.

Criminal liability under the new Act is in general based on description applied to goods included in the first schedule to the Act.

The presence of deleterious ingredients in any feeding stuffs forms the basis for criminal proceedings, and in this connexion it is provided that the presence in a feeding stuff of any substance mentioned in the fifth schedule to the Act or the presence of such a substance in excess of a maximum quantity indicated is to be considered as deleterious unless the contrary is proved.

Failure to give a Statutory Statement in the prescribed form or fraudulent mis-statements in Statutory Statements are also bases for criminal proceedings.

Marking of Articles.

Any articles included in the first schedule to the Act must, when prepared for sale or consignment, be marked in a prescribed manner with the particulars required to be given in the Statutory Statement.

Such marking may either be direct or by marking a commodity with marks entered by the vendor in a register which shows the particulars which the marks indicate.

If such a mark is used, it must be included in the Statutory Statement.

In cases of articles consigned direct from a ship or quay to a purchaser the seller must enter in a register particulars of date of delivery or consignment to purchaser, quantity delivered, shipping or other marks on article and the particulars required to be contained in the Statutory Statement.

Administrative Provisions.

The provisions of the Act of 1906 as to enforcement of the Act by Local Authorities, entry, sampling, analysis, etc., are with certain important modifications preserved in the new Act.

It should, however, be noted that the Act confers on a purchaser the right to have a sample drawn and analysed officially with a view to the possible institution of civil proceedings. Such a sample must not be drawn after the expiration of 14 days from delivery or receipt by the purchaser of the Statutory Statement. Furthermore, with a view to the institution of criminal proceedings samples may be officially drawn on vendors' premises.

It is an important point that criminal proceedings cannot be instituted with regard to a sample drawn otherwise than on the premises of the vendor, although in the case of consignments ex ship or quay samples may be drawn during transit or delivery to the purchaser.

It is provided that the penalty for offences against the Act (unless for offences for which special penalties are provided) shall be a fine not exceeding £20 on first conviction and not exceeding £50 on subsequent conviction.

The special penalty fixed for failing to give a Statutory Statement is a fine not exceeding £5 for a first offence and not exceeding £10 for a subsequent offence, and the consent of the Ministry of Agriculture is not a condition precedent to a prosecution for an offence of this nature.

May, 1927.

GOVERNMENT OF NORTHERN IRELAND,
MINISTRY OF AGRICULTURE,
WELLINGTON PLACE, BELFAST.
7th December, 1926.

HORSE BREEDING ACT (NORTHERN IRELAND), 1926. HORSE BREEDING (NORTHERN IRELAND) RULES, 1926.

Sir,

I have to direct your attention to the fact that the Horse Breeding Act (Northern Ireland), 1926, which recently became law will come into operation on 1st January, 1927. Under the provisions of Section 1 of the Act (see extract appended) any person who after that date, owns, keeps or has under his control a stallion of three years old and upwards (calculated from the 1st day of January in the year of its birth) is liable to prosecution and to the penalty provided in the Act, unless the stallion is licensed or a permit has been granted in respect thereof by the Ministry.

The Rules made under the Act provide that an application for a licence must be lodged with the Ministry on the prescribed form not later than 1st September in the year preceding that for which the licence is required. With a view, however, to enabling owners of stallions, in

respect of which applications for licences for the year 1927 have not yet been lodged, to comply with the provisions of the Act, the Ministry is making arrangements to deal with all applications which are received not later than 15th December, 1926. A form of application is accordingly enclosed, which should be completed and forwarded to these offices in the accompanying envelope, together with a remittance for £1 1s 0d (being the prescribed licence fee).

The Act makes special provision for the licensing of stallions which the Ministry is satisfied will be used *solely for the service of mares the property of the owners of the stallions*. In the case of stallions to be so used owners should apply to the Ministry for particulars not later than 15th December, 1926.

The Ministry will also be prepared to consider applications for permits to keep unlicensed stallions which come within any of the following categories and which *are not to be used for stud purposes* :—

- (a) Stallions used solely for racing.
- (b) Stallions used solely as polo ponies.
- (c) Stallions used solely as draught, harness or riding horses.
- (d) Stallions used solely for circus performances or similar purposes.

Such applications for permits in the case of stallions already in Northern Ireland must be lodged on the prescribed form not later than 15th December, 1926, and must be accompanied by a fee of 1/-. It should be clearly understood, however, that permits will be granted only after the fullest investigation into the particular circumstances of each case in which application is made.

I am, Sir,

Your obedient Servant,

JAMES S. GORDON,

Secretary.

Extract:—Section I of Horse Breeding Act (Northern Ireland) 1926.

1. Any person who, after the appointed day, owns, keeps or has control of a stallion of three years old and upwards calculated from the first day of January in the year of its birth shall be liable on conviction to a fine of two pounds, unless the stallion is licensed, or a permit has been granted in respect thereof, under the provisions of this Act; and any person who has been convicted of owning, keeping or having control of a stallion contrary to the provisions of this Act, shall, if after the expiration of seven days following such conviction he owns, keeps or has control of such stallion contrary to the provisions of this Act, be liable on conviction to a fine of five pounds; and if, after such second conviction, he continues to own, keep or have control of such stallion contrary to the provisions of this Act, he shall be guilty of a continuing offence and be liable on conviction to a further penalty of forty shillings for each week or part of a week during which he is guilty of the continuing offence.

No. A.559/26.

WEEDS AND AGRICULTURAL SEEDS (IRELAND) ACT, 1909.

Sir,

I have to state that, after careful consideration of the results of the tests of samples officially drawn during recent seasons, in accordance with the provisions of Part 2 of the above-mentioned Act, the

Ministry has decided that, in future, publication will be made of particulars (including the names and addresses of both wholesalers and retailers handling the seed) of samples drawn in this connection which are found on test to be unsatisfactory. Merchants should, therefore, take special care to ensure that no unsatisfactory seed is placed on sale.

I am, Sir,

Your obedient Servant,

JAMES S. GORDON,

Secretary.

To the person or firm mentioned in the address.

GOVERNMENT OF NORTHERN IRELAND.
MINISTRY OF AGRICULTURE.

LIVE-STOCK BREEDING ACT (NORTHERN IRELAND) 1922.

IMPORTANT NOTICE TO FARMERS.

- I. The following types of Bulls will NOT be Licensed in future.
- (a) Non-pedigree Ayrshire, Dexter, Friesian, Hereford, Jersey, and Kerry Bulls.
 - (b) Blue-grey Bulls.
 - (c) Non-pedigree Black Bulls with horns or visible signs of horns or which have been dehorned.

THEREFORE CASTRATE ALL BULL CALVES OF THE ABOVE TYPES.

II. Types of Bulls that will be Licensed if OF GOOD CONFORMATION AND APPEARANCE.

- a) Pedigree Bulls of all breeds.
- (b) Non-pedigree Bulls of good Shorthorn type and character.
- (e) Non-pedigree Bulls of Aberdeen Angus, Red Poll and Gallo-way breeds which are in character and appearance truly typical of their breeds and in respect of which there is evidence of two or more crosses of Pedigree Blood.

Where any dispute arises as to whether a Bull is a Pedigree animal the Bull will not be regarded as pure bred unless its sire and dam are entered in the Herd Book and unless the Bull itself is entered or is eligible for entry in the Herd Book of its Breed.

LIST OF STATUTORY RULES AND ORDERS OF NORTHERN IRELAND, RELATING TO ACTS ADMINISTERED BY THE MINISTRY, ISSUED DURING THE PERIOD COVERED BY THE REPORT.

- (1) Black Scab in Potatoes (Northern Ireland), No. 1 Order, 1926 (dated 31st December, 1926).
- (2) Black Scab in Potatoes (Northern Ireland), No. 1 Order, 1927 (dated 13th January, 1927).
- (3) Black Scab in Potatoes (Northern Ireland), No. 2 Order, 1927 (dated 13th January, 1927).
- (4) Importation of Elm Trees (Prohibition) (Northern Ireland) Order, 1927 (dated 15th February, 1927).
- (5) Black Scab in Potatoes (Northern Ireland), No. 3 Order, 1927 (dated 15th June, 1927).
- (6) Horse Breeding (Northern Ireland) Rules, 1926 (dated 7th December, 1926).
- (7) The Importation of Potatoes (Malta and Canary Islands) (Northern Ireland) Order of 1927 (dated 8th July, 1927).

GOVERNMENT OF NORTHERN IRELAND.
MINISTRY OF AGRICULTURE.

GRANTS TO AGRICULTURAL SOCIETIES, etc.

1. CLASS OF SHOW, ETC., ELIGIBLE FOR GRANT. A County Committee of Agriculture may, subject to the approval of the Ministry and to the conditions of this scheme, make grants to societies, not conducted for profit, which have been established for the purpose of :—

(a) holding Agricultural, Poultry, Horticultural and Farm Produce Shows; Shows or Exhibitions of Rural Industries; Skilled Labour Competitions, Implement Trials, Ploughing Matches, etc. The grant to any one Ploughing Match, irrespective of the number of competitions at such match, shall not exceed £7 10s 0d. Such grants should be utilized in providing money prizes for competing ploughmen only.

NOTE.—A Society will not be eligible for a grant under this scheme in aid of its Show if there is provided at the Show any entertainment or attraction (other than a Pony Gymkhana) which is normally subject to entertainments duty. Such entertainments, etc., include races with horses, dogs, or other animals, or items involving the use of mechanically-propelled vehicles, or side-shows which have not been approved by the Ministry.

(b) obtaining for their members Analyses of Manures and Feeding Stuffs, Seed Tests, etc.

2. APPLICATIONS FOR GRANTS. (1) It shall be the duty of the Secretary of the County Committee, by means of advertisements or otherwise, to invite applications, in accordance with the provisions of this scheme, from all societies or other bodies concerned, and to submit same with the necessary particulars to the County Committee as soon as possible but not later than at a meeting of the Committee held in the month of February.

(2) A Show Society or other body desiring to obtain a grant under the scheme, shall, on or before a date to be fixed by the County Committee, make application on the prescribed form to the County Committee, and shall at the same time furnish the following documents in respect of each Show held by the Society in the previous year, viz. :—

(a) A balance sheet duly certified to have been audited and found correct by two persons not being members of the Committee of the Show Society or other body concerned, and setting forth in detail the financial position of the Society after all liabilities have been discharged; and also

(b) If required, a list certified by the Secretary of the Show Society or other body setting forth the amounts actually collected in local subscriptions from private individuals in the previous year.

Any society or other body which fails to furnish these documents, or such further information as the County Committee or the Ministry may require, shall not be eligible to receive a grant.

(3) Not later than 1st March, the County Committee shall forward to the Ministry the foregoing documents, together with their proposals as to the distribution of funds available under this scheme.

3. ALLOCATION OF GRANTS. *In allocating the funds available under this scheme the County Committee should consider the claims of the various Shows held in the County and the special requirements of particular districts.*

The County Committee in allocating a grant to any particular Show shall take into consideration :—

- (1) the amounts actually collected in local subscriptions from private individuals in the two preceding years;
- (2) the total value of prizes awarded in the previous year, and the proportion of same to the cost of administration;
- (3) the regard paid by the society to the furtherance of the Ministry's live stock, poultry, and other county schemes, and
- (4) the amount set aside for classes confined to small farmers.

4. PRIZE SCHEDULE. (1) The prize schedule and the full programme of the Show shall, *prior to publication*, be submitted in duplicate through the County Committee to the Ministry for its written approval.

(2) In the case of stallions competing either in reserved or in open classes at a Show subsidized by a County Committee the following conditions shall be observed :—

- (a) Stallions, the property of owners residing in Northern Ireland, shall be ineligible to compete unless licensed by the Ministry under the Horse-Breeding Act, 1926, and
- (b) Stallions which are entered on the Ministry's Register for the current year shall be exempted from veterinary examination.

(3) In the case of live stock shows, other than shows confined to horses, provision shall be made in the schedule of prizes for the inclusion of classes for sheep, goats, swine, and for the breeds of poultry subsidized by the County Committee.

In dairying districts show societies should make special provision for classes for registered dairy cows and their recognized progeny. The Ministry may from time to time prescribe certain particulars to be furnished by exhibitors in respect of each animal entered in such classes and these particulars shall be stated in the catalogue of the show. Prizes shall not be paid until the correctness of the particulars published shall have been confirmed by the Ministry. If the County Committee so require classes for home-made butter shall be provided.

The Ministry will not consider any schedule which has not previously received the approval of the County Committee.

5. ACKNOWLEDGMENT OF GRANT. The amount of the joint contribution from the County Committee and the Ministry shall be acknowledged in the prize schedule.

6. FACILITIES FOR MINISTRY. Each Society receiving a grant under this scheme shall, if required, afford all reasonable facilities for the inspection of its books by the Ministry, and shall admit the Ministry's Inspectors to the Judges' rings during all adjudications.

7. NEW SOCIETIES. Grants from the joint fund available under this scheme may be given to new show societies, provided that the County Committee and the Ministry are satisfied :—

- (1) that there is need for such new societies in the County;
- (2) that adequate local support is forthcoming, and
- (3) that the rules and financial proposals of the society are satisfactory.

8. JUDGES. The cost of employing judges shall be defrayed by show societies out of their own funds. The Ministry cannot undertake to supply the services of a judge or demonstrator for any show or competition.

If the County Committee approve, one or more of the Instructors employed under county schemes may be permitted, for the purpose of giving demonstrations, to attend a show subsidized by a County Committee, or to act as judge at such a show in another county.

9. PAYMENT OF GRANT. (1) Immediately after the show or competition the Secretary of the Society or other body shall furnish to the County Committee a certificate as to the total amount actually awarded in prizes,

exclusive of cups and presentation prizes (the value of which should be stated separately), together with a certificate to the effect that no entertainment save a Pony Gymkhana or other approved attraction was provided at the Show. In the case of a ploughing match the certificate should show the amount paid in cash to competing ploughmen in respect of prizes.

(2) As soon as the County Committee are satisfied as to the fulfilment of the conditions of this scheme, they may authorize payment to be made to the show society or other body of the full amount of the grant, or part of the grant, as the case may be.

(3) In the event of the total sum actually awarded in prizes at any show or competition being less than the sum originally voted by the County Committee, the show society or other body managing the show or competition shall not be entitled to receive payment from the joint fund of any sum exceeding the amount actually awarded in prizes, exclusive of cups and presentation prizes.

10. PENALTIES. Non-compliance with any of the foregoing regulations may render a show society or other body ineligible for a grant under this scheme, and may entail the cancellation of any grant proposed to be given by the County Committee to such show society or other body. (See note to Clause 2 (2)).

The inclusion of any unapproved entertainment, other than a Pony Gymkhana, in the programme of a Show for which a grant has been promised by a County Committee will involve the automatic cancellation of the grant.

11. In all cases of dispute in matters connected with this scheme the decision of the Ministry shall be final.

The Ministry recommends that each agricultural or other show society receiving a grant under this scheme should invite the County Committee to nominate one or more of their members to act on the Show Committee.

NOTICE.

It is still necessary for Show Societies to make application to the Commissioners of Customs and Excise, Custom House, London, E.C.3, for exemption from entertainment duty.

Such applications should reach the Commissioners at least fourteen days before the date of the Show.

GOVERNMENT OF NORTHERN IRELAND. MINISTRY OF AGRICULTURE.

A.1590/26.

FORESTRY.

Scheme for supplying young trees for planting at reduced prices to Farmers.

1. The Ministry has decided to adopt a scheme under which young trees of certain species will be supplied when available from the Ministry's nurseries at reduced prices to farmers.

2. The scheme will commence on a small scale in the autumn of 1927 with the following species only, viz., Sitka Spruce, Douglas Fir and Scots Fir. The trees available this season are small in size—about 12 to 15 inches high. They are suitable for planting in exposed situations, but where it is intended to plant land on which there will be a rank growth of grass, rushes, briers, etc., these small trees should not be used, unless

very particular care can be given towards preventing them from being smothered during the first two growing seasons. Larger trees, suitable for such conditions, will be available in November, 1928.

3. From November, 1928, onwards, the Ministry hopes to be able to supply trees of the following species:—Sitka Spruce (mainly), Douglas Fir, Japanese Larch, Common Spruce, Scots Fir and species of Silver Fir.

Applicants should note that no kinds of trees other than those specified above will be supplied. If they desire to purchase Common Larch or such trees as Sycamore, Beech, Ash or Thorn Quicks they should obtain quotations from nurserymen.

4. Lots of less than 1,000 plants will not be supplied, each lot of 1,000 plants to include not more than two species.

Persons requiring smaller quantities should purchase from nurserymen.

Advice regarding the kind of trees suitable for the land proposed to be planted, as well as instructions as to the proper methods of planting, can be had from the horticultural instructor in each county. The instructor will also be able to advise as to suppliers of trees other than those offered for sale by the Ministry.

CONDITIONS OF SALE.

5. Any person desirous of obtaining trees under this Scheme should apply on the prescribed form to the Ministry stating how many plants are required and how many of each species. He should also furnish the name of his nearest railway station or state if he can take delivery at Hillsborough Nursery.

Until further notice the price free on rail of plants of every species above mentioned will be 30/- per thousand. Every application must be accompanied by a remittance to cover the cost of the plants specified in the application. Remittances should be in the form of either a postal order, money order or cheque made payable to the Ministry of Agriculture, Northern Ireland. *Cash or Treasury Notes should on no account be sent.*

Consignments will be despatched carriage forward, and freight charges must be paid separately by the applicant to the railway or carrying company concerned.

If all or any of the plants cannot be supplied a refund of the whole or balance of the price paid, as the case may be will be made.

Applicants who purchase plants under this Scheme must undertake to plant the *trees on their own holdings* and not to resell any of them. They must also undertake that the trees shall be protected by proper fencing from live stock and rabbits. Any breach of these conditions may result in the Ministry refusing to entertain a further application under the scheme from the person involved.

Forms of application may be obtained from the Ministry of Agriculture, 25 Wellington Place, Belfast.

GOVERNMENT OF NORTHERN IRELAND. MINISTRY OF AGRICULTURE.

(ON BEHALF OF THE MINISTRY OF FINANCE)

SCHEME OF LOANS FOR THE ERECTION OF FENCING IN MOUNTAINOUS DISTRICTS.

The Ministry of Agriculture (hereinafter called the Ministry) has been authorised by the Ministry of Finance to consider a limited number of applications for loans for the above purpose under the following regulations which should be carefully read by intending borrowers:—

1. These loans are not intended for occupiers who might reasonably be expected to pay cash for the fencing required. The object of the scheme is to encourage occupiers to fence in their arable land or to fence off mountain grazing so as to permit of the holdings being used to the best advantage.

2. Loans may be granted for the purpose of erecting wire fencing :—

- (a) for the boundary fence of a holding;
- (b) for separating arable land from mountain grazing or similar rough pasture;
- (c) for the internal fencing on the farms of applicants where wire fencing is the most suitable for the purpose.

3. Persons qualified to borrow under this scheme are rated occupiers of land wholly or mainly dependent for their livelihood on farming and who are owners in fee, holders of fee farm grants, tenant purchasers, or vested tenants under the Land Purchase Acts, Leaseholders or Judicial tenants.

4. An application for a loan must be made to the Ministry on the prescribed form attached hereto.

5. A loan will not be granted for a smaller sum than £10 or for a larger sum than £100, which will be the maximum sum advanced for the erection of fencing on any one holding or to any one individual.

6. Loans up to and including £30 will be repayable within five years; and loans exceeding £30 will be repayable within ten years. Loans will be repayable by a fixed annuity including principal and interest collectible by equal half-yearly instalments on the 1st May and 1st November in each year. The interest included in each annuity will be at the minimum rate in force for local loans at the time the loan is granted; the rate of interest is at present $5\frac{1}{2}$ per cent. per annum. The date on which the fencing is delivered at the holding will be taken as the date of the granting of the loan. Interest for the broken period from the date of delivery of the fencing material up to the first gale day will be chargeable and collectible on that gale day. For example, if the fencing material were delivered on the 1st April, interest from that date up to and including 30th April would be payable on the following 1st May and the first half-yearly instalment would be payable on the next ensuing gale day, viz., 1st November.

For the information of intending borrowers it may be stated that a loan of £20 granted on the 1st May, 1927, would (assuming a rate of interest of $5\frac{1}{2}$ per cent. per annum) be repayable by ten equal half-yearly instalments of £2 6s 2d.

7. Repayment of the loan and interest thereon will be secured by a joint and several promissory note or bond in favour of the Ministry of Finance to be entered into by the borrower and by not less than two solvent sureties to be approved by the Ministry.

8. When satisfied that the approved applicant for the loan has made proper arrangements for proceeding with the work the Ministry will supply the necessary fencing materials as well as the services of a foreman to superintend for a limited period the erection of the fencing. The farmer on whose lands the fencing is to be erected must at his own expense provide such other labour as may be required.

9. During the period of the loan the fencing shall be maintained by the borrower in good order and repair to the satisfaction of the Ministry and the fence may be inspected at any time on behalf of the Ministry.

10. All facilities shall be given by the applicant to the officers of the Ministry or other authorised persons who may visit him for the purpose of enquiring into the application.

11. Any wilful misrepresentation on the part of the applicant will cause his application to be refused. If in such case the loan or any portion thereof has been issued immediate repayment may be required.

12. The Ministry will not be responsible in any way in the event of any fencing purchased under this scheme failing to give satisfaction.

13. The Ministry reserves the right to refuse any application for a loan without assigning any reason for such refusal.

14. The decision of the Ministry in all matters relating to these loans shall be final and conclusive.

MINISTRY OF AGRICULTURE,
WELLINGTON PLACE,
BELFAST.

April, 1927.

GOVERNMENT OF NORTHERN IRELAND.

MINISTRY OF AGRICULTURE.

SCHEME OF GRANTS FOR THE PLANTING OF FOREST TREES.

REGULATIONS.

1. No application will be eligible for grant unless it has been approved in writing by the Ministry of Agriculture before the commencement of operations.

Applications for grants shall be made to the Ministry not later than 1st April.

2. Grants are for commercial planting only.

3. All work under the Scheme shall be subject to inspection from time to time by the Ministry or their authorised representatives.

4. Any contracts for or incidental to the work shall be placed in Northern Ireland.

5. As regards Grant No. 1 as soon as the Ministry is satisfied by inspection and otherwise that the planting to be done under the scheme has been satisfactorily completed, it will certify accordingly. The certificate will state the amount of the grant, 75 per cent. of which will then be due and payable. The balance will be paid 4 years later provided the Ministry is satisfied that any necessary beating up has been carried out, and the plantation properly established and maintained.

In the case of Grant No. 2 as soon as the Ministry is satisfied by inspection and otherwise that the work to be done under the scheme has been satisfactorily completed, it will certify accordingly. The certificate will state the amount of the grant which will then be due and payable.

As regards continuing schemes, payments, as above stated will be made annually on completion of the year's work, subject to inspection and certification.

6. Approval of Schemes is subject to the work being done within the period or periods stated in the Scheme or such extended time as the Ministry may in writing authorise.

7. Acceptance of Grant No. 1 or of 75 per cent. of such Grant shall imply an undertaking by the recipient thereof that the plantation shall be properly established and shall be maintained to the satisfaction of the Ministry for four year from the planting thereof, and that in the event of failure to comply with this undertaking the Grant shall be repaid by the recipient to the Ministry on demand with simple interest at 5 per cent. per annum from the date of the Grant.

8. Acceptance of Grant No. 2 shall imply an undertaking to plant up the area and to do so within two years of receipt of that grant unless the Ministry in writing authorise any extension of time. (Grant No. 1 may be applied for in respect of an area for which Grant No. 2 has been paid).

APPLICATION FOR GRANT.

I hereby apply for a grant in respect of the above Scheme, which will be carried out in accordance with the Regulations.

(Signature)

(Date)

FOR MINISTRY'S USE ONLY.

The above Scheme is approved by the Ministry of Agriculture as eligible for grant.

(Signature)

(Date)

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